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JULY 13, 1927

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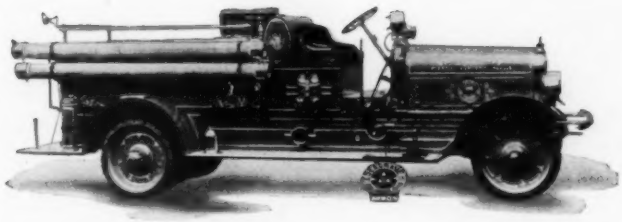

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The Journal of the Fire Protection Profession Since 1877

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FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

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Can You Get Away?

EVEN if you have to beg or borrow the money, find some way if you can to attend the Convention of the International Association of Fire Chiefs at Portland, Ore., August 9-12.

¶ Unless we miss our guess, it's going to be the most important gathering the Association has ever held and there are a thousand and one reasons why every one interested in the profession of fire extinguishment and fire fighting should be on hand.

¶ If you really can't make it, however, you can have consolation in the fact that FIRE ENGINEERING will bring the whole story home to you in a way that will make you feel you were right on the ground.

¶ Our Pre-Convention Number, July 27th, will be a corker, too. It will be brimful of valuable information and carrying as it will the advertisements of practically every worthwhile fire equipment manufacturer in the business, it is something you'll want to keep for reference.

¶ Go to the Convention if you can; but look for the Convention Number, whether you go or not.

The Publishers

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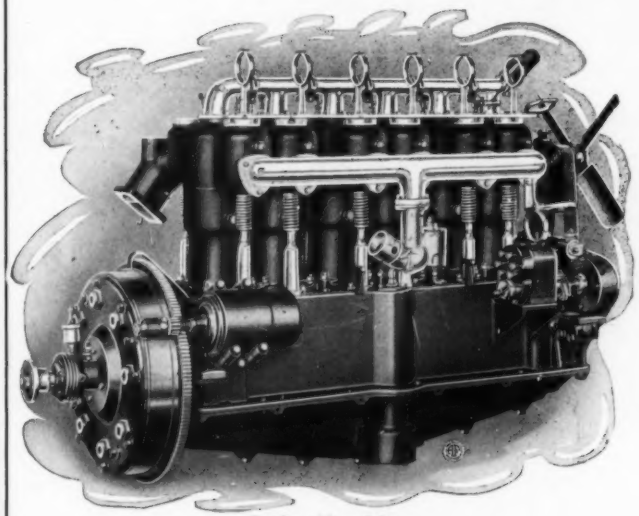
Ahrens-Fox



Intake side—right

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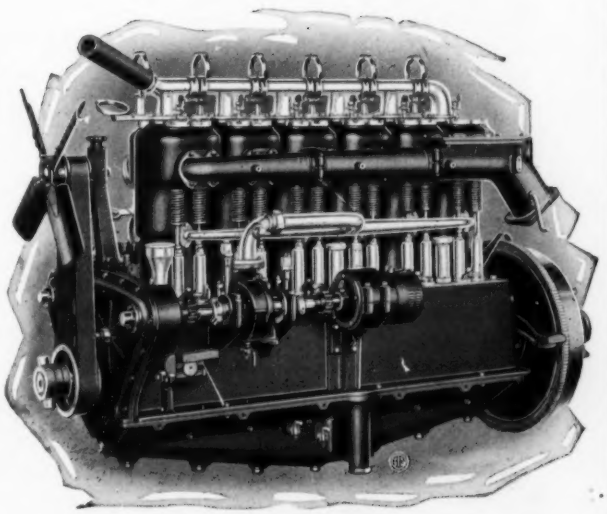
The close contact of Ahrens-Fox engineers with actual fire service conditions and long experience in designing apparatus to meet these conditions thoroughly qualifies them to furnish municipalities with apparatus equipped with a motor of proven dependability and unquestioned service qualities.

Fire officials who realize the responsibilities of their positions and their duty of protecting the life and property of their town or city as far as humanly possible, know that quality and service are far more important than any other consideration. The cost of your apparatus is measured by service rendered over a long period of years, and not by the initial cost.

Hundreds of municipalities throughout the country who are fortunate in having such officials in charge of their fire departments are now equipped with Ahrens-Fox apparatus. Others are planning to make such purchases in the near future; and if you are interested in up-to-date fire apparatus we shall be glad to send complete information without obligating you in any way.



Exhaust side—left

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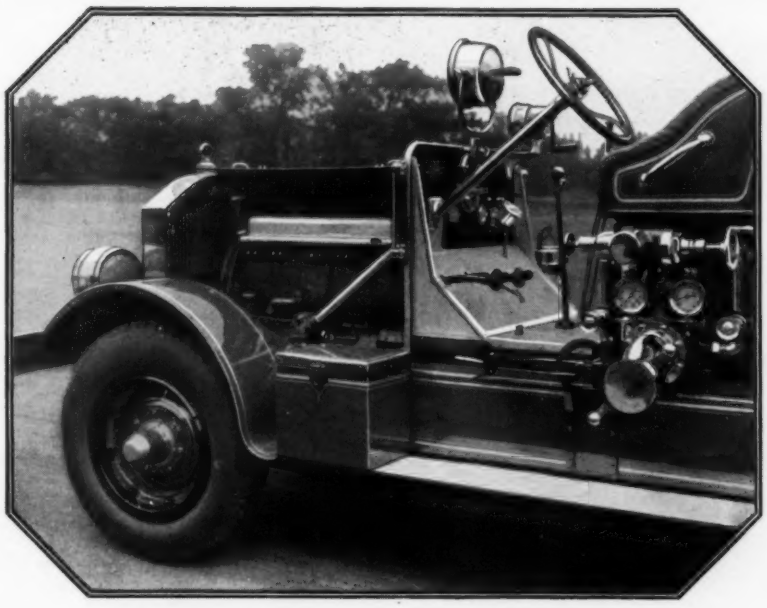

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And that's where the "Childs Thoroughbred" first shows its value.

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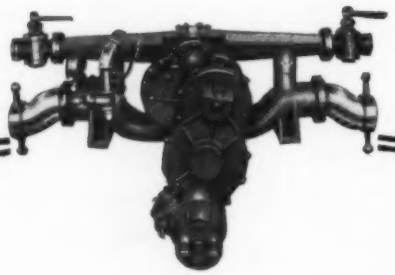
A Complete Engineering Service
Against Fire



筒唧ンリソガ(用挽人)式ンザーノ

In Japan, menaced by quakes, floods and pestilence, Fire, the ever present peril, has taken more lives than all the others combined.

The Japanese are known all over the world as highly intelligent, aggressive, and progressive — and it is known that they demand the best in what they buy. The World competes for their orders.

In pumps, they are offered the best that can be produced by the master craftsmen and famous engineering talent of England, France, Italy, Germany and the United States. Is it not likely that in selecting Fire Pumps, their demands will be especially exacting? The congestion in their housing condition, the flimsy highly inflammable nature of their houses call for the best in pumps—and they must be compact, light weight and highly efficient as well as completely dependable.

Since 1920 over 250 Northern pumpers, many of them self propelled, have been delivered to Japanese Municipalities. Northerns have also been shipped to Cuba, Porto Rico, Portugal, Netherlands, India, Spain and South Africa—competing successfully with Pumps of all makes offered in the world's market. Surely a pump that competes successfully with the world's best deserves your confidence.

The Northern Rotary Pump is used exclusively by 13 Manufacturers of Fire Apparatus in the U. S. and by many foreign makers. Be sure there is a Northern Rotary Pump on your next pumping engine.

Northern Pumps are doing big things in the industrial world—performing exacting services—establishing records for dependability, durability and efficiency.

Many of the world's largest users of pumps buy Northerns regularly. Northern Pump ads will tell you interesting impressive provable facts of the things that are being done by Northern Pumps that no other Rotary fire pump has done.

This is one of a series of such ads.

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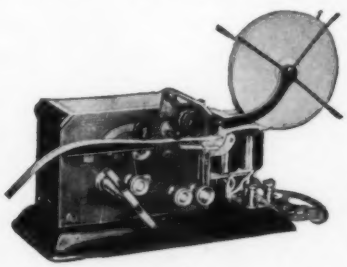
Local offices of the American District Telegraph Company are cooperating with Fire Chiefs and Industrial Fire Officials in cities everywhere by providing an effective system of Automatic Sprinkler Supervision, Fire Alarm Service and Night Watchman Supervision that is helping materially to cut down fire loss and water damage throughout the country.

During the year 1925 the fire and water loss of property protected by A. D. T. Fire Alarm Service was only 8/100 of 1% of the value of property so protected. The fire and water loss of property protected by A. D. T. Sprinkler Supervisory Service was reduced to the remarkable low percentage of only 63/1000 of 1% of the value of property so protected.

Are *you* using A. D. T. twenty-four hours a day Fire Protective Services to cut down *your* fire losses? Do *you* know how *your* local American District Telegraph Company office can be of practical and economical service to *you* in connection with *your* work? If not, write us and we shall be glad to send complete information without any obligation.



We Help Fire Chiefs to Prevent Small Fires from Becoming Big Ones

On the right is shown the A. D. T. night watchman and fire alarm box that is installed throughout A. D. T. protected property. On the left is the registering instrument which is installed in the local A. D. T. office. All boxes together with Automatic Sprinkler Supervisory Instruments are electrically connected with the registering machine. This system provides protection that is at all times positive in its relentless watchfulness.

May we send Complete Information?

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FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Journal of the Fire Protection Profession

VOLUME LXXX JULY 13, 1927 NUMBER 14

Enlarge Salvage Work to Cut Losses

One Duty of Department Is to Clean Up and Leave Things in as Good Shape as Possible—Ideal Work for Volunteer Companies

By WM. PAUL BABCOCK*, Captain Nyack Fire Patrol,

Prepared with the assistance of A. C. Hutson, Assistant Chief Engineer, National Board of Fire Underwriters

IT is a matter of history that the first efforts ever made to reduce the loss consequent to the burning of a building was that of salvage. Before the day of fire hose and fire engines, the only effective means of fighting a fire was by the use of buckets either by the citizens or by trained or volunteer fire brigades. These of course were very ineffective where the fire had gained any headway, consequently the only way the property could be saved was by carrying it out of the burning structure. Such salvage work is still practiced in rural districts where no fire protection is available.

With the introduction of modern fire fighting equipment much of this salvage work was discontinued and it was found that removing property from the building often resulted in extensive damage. There is a story of the volunteer department that threw the mirror out of the window and carried the feather bed downstairs. Such things did occur and it soon became recognized that more effective saving could be brought about by extinguishing the fire and leaving the personal effects in the building. The earlier days furniture and fittings were not of a character which would be greatly damaged by water, but with the more common introduction of expensive rugs, pictures, silks and fine clothing, and such articles as photographs, pianos, radio sets, etc., which would be damaged by water, it became apparent that some effort would have to be made to protect these from the water or chemical streams which were played on the fire.

It has long been recognized by the more efficient fire departments that one of their duties is to clean up after a fire and leave things in as good shape as possible. A number of the up-to-date fire departments have been carrying this salvage work to an even greater degree of perfection. The larger cities which have undertaken salvage work by the fire department and which are extensively doing this work are as follows:

Salvage Work by Fire Departments

San Antonio, Tex.—Covers carried by apparatus and salvage work done by members of the department.

Atlanta, Ga.—Truck companies carry covers and do salvage work.

Dayton, Ohio—Trucks carry covers and members of companies do salvage work.

Schenectady, N. Y.—Trucks carry covers and members do salvage work.

Lowell, Mass.—City supports a protective company equipped with a wagon, 25 covers, chemical extinguisher and short ladders.

Lawrence, Mass.—City supports a protective company equipped with a wagon, carrying 12 waterproof covers, a 60 gallon chemical tank and regular minor equipment of a hose wagon.

Hartford, Conn.—Two trucks carry covers and members do salvage work.

New Bedford, Mass.—Volunteer salvage corps, a part of the fire department, uses covers carried on hose wagons and ladder trucks.

Omaha, Neb.—Covers carried on apparatus and spread by members of the fire department.

Burlington, Vt.—Covers carried on apparatus and spread by members of the department.

Haverhill, Mass.—City fire department has two protective wagons, equipped with chemical tanks. One carries 12 covers, the other 8 covers. Eighteen covers in reserve.

Bridgeport, Conn.—Trucks carry covers for use by members of department.

Rochester, N. Y.—City maintains one protective company, with a wagon and 16 covers.

Los Angeles, Cal.—Four regularly organized fire department companies do nothing but salvage.

San Diego, Cal.—City fire department carries covers.

Fresno, Cal.—City fire department carries covers.

Seattle, Wash.—City fire department carries covers.

Pittsburgh, Pa.—Combinatiton fire department squad and salvage truck fully equipped costing $13,000. Two captains and ten men. Quartered with Engine Co. 3 in business district.

In addition to this list there are many other cities which carry a few salvage covers on one or more of the pieces of apparatus, and there is a growing number of smaller cities largely with volunteer departments which are organizing and maintaining protective companies whose duty it is to spread covers and perform other salvage work.

The principal disadvantage cited against salvage work by fire departments is that of providing man power. It is of course the first duty of any fire department to save life and to extinguish the fire so that it will not spread and involve other property, and until sufficient men are available for this work it is not considered to the best advantage of the city to detail men for salvage work only. A very high percentage of the fire, however, are small and do not require the total first alarm response for the handling of hose lines and ladder work. This means that during this large number of fires, some men will be available who could be used for salvage work.

Volunteer fire departments usually are not limited in man power and therefore it might be said that these organizations are ideal for the carrying on of protective work. In fact it will be noted that some of the larger cities perform their salvage work through the organization of volunteer corps.

Equipment to be Carried

The best results in protecting property against water and other damage consequent to a fire are obtained where a separate specially equipped salvage wagon is provided with a full equipment of covers and tools.

* Read at thirty-eighth annual convention of Hudson Valley Volunteer Firemen's Association.

"Volunteer fire departments usually are not limited in man power and therefore it might be said that these organizations are ideal for the carrying on of protective work. In fact it will be noted that some of the larger cities perform their salvage work through the organization of volunteer corps."

This full equipment varies somewhat in the different departments but should be about as follows:

40 12′ x 18′ covers
2 2½ gallon chemical extinguishers
2 Axes
2 Hatchets
2 Pike poles
1 Pinch bar
2 10′ ladders
1 door opener
6 oil lanterns
2 Presto-light 10″ reflectors
Sponges and chamois
Roll of tar paper
2 1″ augers
1 crow bar
25 sprinkler heads
4 sprinkler stoppers
5 brooms
4 mops
4 squeegees
2 scoop shovels
Box of nails, hooks, staples, hasps, etc.
1 kit of tools
Skid chains

Even where a regularly equipped wagon is maintained in the department, it is well for each of the other pieces of apparatus, *i. e.*, pumpers, hose wagons and ladder trucks, to carry from two to four covers, as these give a reserve supply for a large fire and in some cases, prove to be very valuable when the salvage wagon is busy at some other fire.

Salvage Men Must Know More Than Firemen

As with all other work in the fire department, there is need of drills and training in salvage work and in fact, the knowledge a salvage man should have, exceeds that of the usual fireman. There is a certain knack in the spreading of covers which can only be obtained through extensive practice. It is not alone a question of covering over articles of furniture such as pianos, but also the ability to protect shelving to catch water falling from upper floors and shooting it out of windows and down elevator shafts, and placing covers in such a position as to bag the drip from upper floors.

Salvage men must also know how and when to use the ordinary tools carried, such as axes, hatchets, pipe poles, door openers, and there is also quite a knack in the use of brooms, mops and scoop shovels to remove water from floors and prevent it from injuring goods on lower floors.

Protective men should have intimate knowledge of the design and function of automatic sprinkler systems as made by the different manufacturers, especially those in their own particular city. An automatic sprinkler system is one of the most effective means of controlling a fire, but it also results in a very heavy water damage if not handled in a proper manner. The sprinklers should not be allowed to continue in operation for a period longer than is necessary to actually extinguish the fire, and it is therefor essential that the protective force be acquainted with the shut off valves and be capable of placing the system back into operation. It has been found at many fires that a flash of flame opened sprinklers which were some distance from the actual scene of the fire, with the result that these heads of water were discharging a considerable quantity of water in a part of the building where it was not needed. The fire might be of such a character that it would not be wise to close off the sprinkler system entirely but these distant heads should be shut off to prevent further water damage. All modern salvage corps carry specially designed sprinkler stoppers which can be placed in these heads thus shutting off the water until the system can be shut off and the heads replaced.

Many Types of Covers Used

There are several types of covers in use, and different departments use covers of different sizes. It has been found that a cover 12 feet x 18 feet is probably best suited for protective work. The ideal cover is one which is waterproof under and all conditions. A well made cover coated with rubber on both sides comes closest to meeting this condition. Considerable trouble was experienced with the first rubber covers manufactured, in getting a rubber compound which did not add greatly to the weight of the cover, which was effective in making it shed water and which would not crack from considerable use. Specifications for such a cover have been prepared by the National Board of Fire Underwriters, and can be obtained upon request. A slightly lighter cover, and one rendering satisfactory service in protective work can be made by coating it on one side only. Such a cover, however, is harder to dry and to keep clean. These rubber covers are the most suitable ones for large cities where considerable salvage work is necessary. In cities of this character it is more important that perfect protection be furnished and the shorter life of these covers as compared with other types of covers is not of such great importance, because the extra usage of any type of cover wears it out in a few years.

A few protective companies have used a duck cover treated with a linseed oil compound. These have been satisfactory in shedding water but they have a very serious disadvantage in that they are sticky in the summer and are stiff in the winter and therefore are hard to handle. Probably the most satisfactory type of cover which the usual small department uses is one composed of specially treated closely woven canvas. These covers have been manufactured and used for many years and have the advantage of being light weight, can be easily handled and are sufficiently waterproof for practically all services. A feature

(*Continued on page* 714)

New York to Have Colored Officer

Among the names recently certified to the fire commissioner of New York city by the Municipal Civil Service Commission for promotion to the rank of lieutenant from that of fireman, was that of Wesley Williams, one of the three colored firemen in the New York department.

Wesley Williams

By the end of July, if not sooner, Wesley Williams will be a lieutenant, for he now stands No. 3 on the list and at the average rate of occuring vacancies in a department of over 6,000 members, his name will be reached sometime this month.

He has been a fireman eight years, coming to the department from the U. S. Postal Service, with an unprecedented record of 100 per cent in the medical and physical examination for entrance into the department. He is 29 years of age, stands five feet, eight and one-half inches, is rather light of complexion among his race, married, has a spotless record for deportment and has to his credit, a service rating, Class A for exceptional duty. Moreover, he is an athlete, wrestler and boxer and has represented the fire service with distinction in the athletic competitions held under the auspices of the Municipal Athletic Activities. Besides being a first rate smoke eater, Williams is an efficient chauffeur.

During his entire career as a blueshirt Williams has been assigned to Engine Co. 55 on Broome Street near the Bowery. His comrades and particularly the officers under whom he has served have had only the most commendable statements about him.

His father is "Chief Jim" Williams, the head red-cap at Grand Central Terminal and friend of presidents and other statesmen and national characters who patronize the New York Central lines.

Fireman Williams deserves the promotion about to come to him, for he has studied hard and applied himself to his job. He spends much of his spare time in a gymnasium—always in tip-top physical shape. He was No. 189 on a promotion list which contained 866 names and for which 2500 firemen competed.

WM. JEROME DALY.

A Group of Connecticut Chiefs at the Convention of the New England Association of Fire Chiefs

1—Albert B. Foy, S. Manchester; 2—A. P. Woodward, Danielson; 3—John C. Moran, Hartford; 4—George B. Milne, Rockville; 5—George S. Pitt, Middletown; 6—Lawrence E. Reif, New Haven.

New Cares Brought On by Oil Burners

Necessary to Have Special Safeguards to Business District Because of the Oil Heating Systems—Some of the Regulations

By R. L. DANIEL, Engineer, General Inspection Bureau, Minneapolis*

OIL, as a fuel, is not exactly a new discovery. It has been used for years to furnish heat for industrial furnaces. It is only in the last ten years or even less that it has come into the field as a fuel for heating houses.

Two things may be mentioned as helping to bring this about. One is the large production of oil of a suitable quality at a price to compete with anthracite; the other is the development of burners to use the available grades of oil. Like many other new things coming into sudden popularity, the oil burner idea stimulated into activity a number of inventors and would be inventors and promoters. It seemed, as remarked by one oil burner man, that "every man who had a screw-driver and a wrench thought he could build a successful oil burner."

Another hazard arose from the appearance on the market of numerous oil burners mostly of the natural draft variety, some widely advertised and sold to dealers or users regardless of the qualifications of the buyer to install and adjust such a device. Many honest men squandered the savings of years in the hope of getting rich in the oil burner business, only to find that it cost more than the original profit to keep some of these early burners sold.

List Made of Satisfactory Burners

Fortunately this condition of affairs is beginning to correct itself but in the smaller towns it is likely to be a slow process as the opportunity to observe the fate of certain burners is limited. There is, however, a means by which the public can avoid the danger of unsafe devices. Underwriters' laboratories have for several years been investigating the hazards of oil burners and at times have had 11 furnaces running 16 hours a day, testing oil burners under various conditions. We have a list of burners that have satisfactorily passed these tests and other necessary requirements so as to bear the underwriters' label.

Type of Town Influences Kind of Burner

The size of the town and the size and character of the buildings has much to do with the kind of oil burners used. In large city buildings where a regular engineer or fireman is employed, large boilers or furnaces are used and the engineer is responsible for its safe operation. Here we find usually a burner of the industrial type, while in the smaller buildings with heating plants of the domestic type automatic safety devices are needed and usually the entire operation is automatic.

The safety of the industrial type depending mainly on proper knowledge and care on the part of the attendant, it will be necessary to mention only one or two features at this time. Such burners are usually supplied with oil under more or less pressure by means of a pump, the air supply being regulated by the attendant. Improper adjustment of air supply sometimes results in high stack temperatures so that if a metal breaching or smoke pipe exposes combustible material, a fire may be started. Unless the pipe is insulated a shield of fireproof material should be interposed to protect the wood. Such a heating plant *should be* installed in a fireproof boiler room. We sometimes find a damper in the stack to control the draft. Such a damper should be so made that when closed it will not cut off more than 80% of the stack area. When a weight is used to assist in controlling the stack damper, it should be so attached that if the controls are released the weight will tend to open rather than close it.

Problem of Oil Storage is Serious

A serious problem with oil burner installation is oil storage, particularly with industrial burners and others capable of handling large furnaces and using the heavier and cheaper oils. It is often desired to install tanks with a capacity of 10,000 to 15,000 gallons. The best place for such a tank is underground below the level of the pump supplying the burner. If it can not be below the pump level it should at least be under ground if possible. In city property it is sometimes impossible to provide a place outside the walls of the building and the tank is either buried under the basement floor or enclosed in a space walled off from the basement. In the latter case the tank should be cut off from the rest of the building by walls of 12-inch concrete or the equivalent and the space covered by a slab of reinforced concrete. The space around the tank must be filled with sand or well packed earth to prevent the accumulation of combustible vapor. Whenever it is necessary to locate the tank so that the oil level is higher than the burner or pump, some arrangement is necessary to prevent siphoning in case of accident to the piping.

There are several devices or schemes recognized by the underwriters for this purpose. A number of manufacturers can provide tanks listed and labelled by underwriters' laboratories.

I would like to call your attention to the fact that an underwriter's tank for such use has no bottom connections.

Inside Tank Sometimes Used

The automatic oil burner is usually limited to furnaces such as are used for heating houses and smaller mercantile buildings where it is not practical to have a regular attendant. In connection with these an inside tank is sometimes used with a limit of 275 gallons stored inside the building. The underwriters' rules permit such a tank to be connected so as to feed by gravity to a properly safeguarded oil burner, but this is recognized as more of a hazard than the arrangement requiring a pump to lift the oil to the burner.

The list of domestic burners includes both those with complete automatic control and those with manual regulation but with automatic devices for stopping the flow of oil if the fire goes out or if oil is fed to the burner faster than it can be burned. Most automatic burners have pump feed and mechanical draft although there are automatic burners with natural draft or gravity feed or with both.

There are 60 oil burners of the domestic type which have successfully passed the examination and tests of Underwriters' laboratories. The list includes those with manual control as well as those which are completely automatic; some pump feed and some gravity feed; some depending on natural draft and some with blowers or mechanical draft. The label is evidence of proper construction at the factory.

Usually the manufacturer of a labelled burner will see to it that installations are properly made, but this is sometimes not easy where shipments are made to distant points. Even when this is done the owner or some local service man may disturb the arrangement.

Points for the Inspector

The following points should be noted in inspecting the plant in operation.

If the tank is outside under-ground, it should be below the level of the pump which supplies the burner or if this is impractical, means must be provided to prevent siphoning or gravity flow in case of damage to the piping. If a 275-gallon inside tank is installed, it must be on substantial incombustible supports, and the fill pipe and also the vent pipe must open outside the building and be so located as to avoid the likelihood of oil or vapor entering the building through a door or window. The fill pipe must have a cap which may be locked and the vent pipe which should be not smaller than 1-inch pipe size, must have a weather proof hood, screened to keep out insects.

* From paper read at the meeting of the South Dakota Fire Chiefs Association.

"It is a wise thing to have a good fire extinguisher in the furnace room regardless of the kind of fuel, and with fuel oil, an extinguisher approved for oil fires should be used. Near every oil burning furnace there should be a card giving complete instructions for the care and operation of the system, and this should be placed under a glass and framed."

There should be a test well or gauge so designed as to prevent escape of oil or gas in the building, gage glasses which would if broken allow the escape of oil or vapor must not be used.

Rules for Piping

The piping must be standard full weight iron steel or brass with substantial fittings. Care must be taken to run the pipe where it will not be exposed to damage. When it is necessary to cross the floor a groove or trench should be made for the pipe and afterward refilled with cement or provided with a steel or iron cover. Supply pipe must be not less than ¼-inch iron pipe size. Return pipe from pump must be at least as large as supply pipe and overflow from auxiliary tank to storage tank should be larger than supply pipe. A pipe fitter on his first job of oil piping is likely to find that he has something to learn. Considerable care even by experienced fitters is needed to be sure of a perfectly oil-tight job. My personal opinion is that nothing smaller than ⅜-inch pipe should be used except for short connections which might be considered part of the burner. Unions are necessary at or near the burner to provide for disconnecting the burner and these must be approved unions of a type which does not require packing or gaskets. Approved valves must be provided near the burner and also at the tank. Valves should be installed so as to close against the pressure. In connection with pipe sizes, I would call attention to the overflow provided on all burners in which the oil is vaporized rather than atomized. This is a safeguard against the overflow of oil onto the floor or into the ash pit when for any reason the fire is accidentally extinguished or receives more oil than can be burned. It provides for the overflow of the unburned oil into a small bucket or into a chamber containing a float so that a small amount of oil overflowing will cause the closing of a valve to stop the flow of oil.

The overflow pipe must be not smaller than ½-inch iron pipe size and the opening from the burner into this pipe must be protected or so located that it can not be obstructed by carbon or other matter that may accumulate. In reviewing a list of 100 fire department calls due to oil burners, over one-third were caused by overflow of oil, where the overflow shut off failed to operate because of a small pipe or overflow opening becoming clogged.

Chimney Should Not be Obstructed

It is important that the smoke pipe and chimney be not obstructed and that no damper be used which will cut off over 80 per cent of the opening. Instances have occurred with a smoky burner, which usually means insufficient air for the amount of oil, or perhaps a poorly designed burner, that accumulations of soot have so reduced the smoke passages that a mixture of oil vapor and air in the furnace would be ignited and cause an explosion sufficient to blow open the furnace door and the house would be filled with sooty smoke even though the fire remained in the furnace.

Conditions Around Furnace

I would call attention to the recommendations of the National Board of Underwriters regarding the general arrangements around the furnace. No combustible material should be stored within ten feet of the furnace. Any woodwork, wooden lath and plaster partitions or other combustible material within four feet of the sides or back or eight feet of the front of the furnace shall be covered with approved plaster board or other approved incombustible material. Above the furnace there shall be constructed a ceiling, consisting of plaster board covered with sheet metal, or cement plaster on metal lath, to extend four feet beyond the sides and back and eight feet in front.

At least a 36-inch clearance is necessary between breeching or smoke pipe and combustible material unless breeching and flues are insulated with 2 to 4-inch asbestos magnesia lagging or equivalent, in which case the distance may be reduced to eighteen inches. The ordinary coal burning furnace is not always designated to take up the heat from oil burning with high efficiency and the gases going out the stack are apt to have a high temperature which, of course, increases the fire hazard from hot smoke pipes. Several fires have been caused in this way.

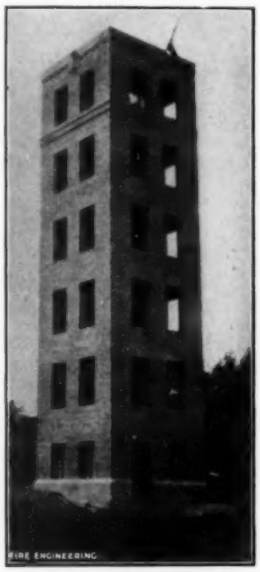
It is a wise thing to have a good fire extinguisher in the furnace room regardless of the kind of fuel and with oil fuel one approved for oil fires should be used.

Last but not least—near every oil burning furnace there should be a card giving complete instructions for care and operation of the system. This should be placed under glass and framed.

Prospect, N. Y., Receives Apparatus—"Deluge" fire apparatus has been delivered to Prospect, N. Y.

Bungalow Station of New Britain

With the recent opening of Fire Station No. 7, located on Stanley street, the city of New Britain, Connecticut, now boasts of one of the finest bungalow type fire stations in New England. Situated on the main road between New Britain and Hartford, the new house has attracted automobilists from all parts of the country with its homey atmosphere and new style of fire station architecture. The station was erected in the bungalow type through the suggestion of New Britain's fire chief, William J. Noble, and is a fitting addition to the same style bungalow type residences in the neighborhood.



New Britain's Drill Tower

The building is one of brick and stucco with pointed roof instead of the regular style flat roof fire stations. It has all the appearances of a modern two-story villa. On the main floor is the company's apparatus, an American-La France 750-gallon pumper. Also on the apparatus floor is the elaborately fitted captain's office, kitchen with tile flooring, wash room and shower baths.

The dormitory on the second floor is the last word in fire house sleeping quarters. On the same floor is a reception room

Bungalow Station of New Britain, Conn.

partitioned off from the dormitory with French panel doors. The new station was erected at a cost of $38,000.

In the rear of the building is the new drill tower for the New Britain firemen which stands 70 feet in the air and built of brick. The firemen will be schooled at this tower by Assistant Chief Eugene Barnes, department drillmaster. The new tower cost $6,000, and is five stories high.

T. F. MAGNER.

Independence, Ia., Awaits New Apparatus—Independence, Ia., is awaiting the delivery of its new fire apparatus purchased from a firm in Minneapolis.

Dayton, O., to Receive Fire Apparatus Bids—Dayton, Ohio, has invited bids for supplying the city with a 75-foot aerial ladder truck with the complete equipment and a 1,000-gallon pumper. Some of the present old equipment will be sold. A 750-gallon pumper now in service will be completely overhauled and a new fire station will be erected.

Pulverized Coffee Starts Big Fire

Embers Drop in Elevator Shaft Spreading Blaze Throughout Four-Story Wholesale Produce House

THE fire described in this article of the series on administration occurred in a building typical of a great number found in medium sized and large cities throughout the country.

This fire took place in a city of approximately 70,000 population located on the Atlantic seaboard.

The department in this city is made up of 7 engine companies, all motor equipped, and 2 truck companies, each possessing a city service ladder truck, motor propelled.

Response to Alarms

Response to alarms as follows:

First alarm, Engine Cos. Nos. 1 and 2 and Truck Co. No. 1.
Second alarm, Engine Cos. Nos. 3 and 4 and Truck No. 2.
Third alarm, Engine Cos. Nos. 5 and 6.

The remaining engine company is left in service for answering alarms while other apparatus is engaged at large fires. This remaining engine company, Engine Co. No. 7, is only summoned by special call and then only when it is urgently needed, such as when a conflagration is developing.

The water supply in the neighborhood of the fire building was fair but the pressure was not sufficient to give hydrant streams.

Seven hydrants were immediately available only one of which, No. 4, would be unsatisfactory for more than a single small stream, this hydrant being attached to a 4-inch dead-ended main.

Occupancy of Fire Building

The general layout of the building in which the fire occurred as well as surrounding buildings is shown in the sketch herewith.

It might be mentioned at this point that the department held the fire to the one building, which, in view of the conditions, speaks very well of the efficiency of the department.

The fire building was a wholesale produce house, and on the fourth floor were carried on various processes such as coffee roasting, sugar pulverizing, spice grinding and extract compounding.

In addition to the above named processes large quantities of sugar, beans, paper containers, extracts, coffee and rice were stored thereon.

The third floor was occupied by groceries, clothing, tool supplies and, in a separate room, approximately 100 cases of rifle and revolver ammunition.

On the second floor was approximately one carload of egg crates (knocked down), cereals, canned goods, starch and small printed press with incidental equipment.

The ground floor was occupied by offices, canned goods in storage, egg case shooks, soaps, beans and sugar, while in the basement there were approximately two carloads of matches, sixty bales of excelsior, canned goods, beverages and the usual boiler room.

The building itself had one pronounced defect which was largely responsible for the spread of the fire. This was the open elevator shaft in the center running from the basement through to the top floor.

This shaft had open grill-work of wood on three sides and on the fourth side had only wooden gates which dropped down to prevent passers-by from falling into the shaft.

The Fire

At the time the fire occurred there was a strong wind blowing from the southeast, tending to drive the fire toward the large cold storage plant directly north of the fire building.

The fire started about 11:30 on a Saturday morning, when all departments on the fourth floor of the building were busily engaged. It is believed that pulverized coffee dust in the air ignited from an exposed direct current motor commutator which was sparking badly. At any rate there was a flash in which several employees were badly burned. All, however, managed to reach the stairs alongside the elevator and got to safety to the street below. On their fast trip downward they spread the alarm and the building was cleared out. The explosion ignited a large quantity of crate tops standing near the elevator shaft and which had been recently dumped there.

Before the fire department had arrived (and no efforts were made to extinguish the fire in the meantime due to the extent of the blaze on the top floor) the fire had involved these packing case tops, and fire had dropped down the elevator shaft. It is also quite certain that fire dropped from the fourth to the third floor igniting clothing on the third floor around the elevator shaft.

When the department arrived the top floor was completely involved and the fire was also burning on the third floor.

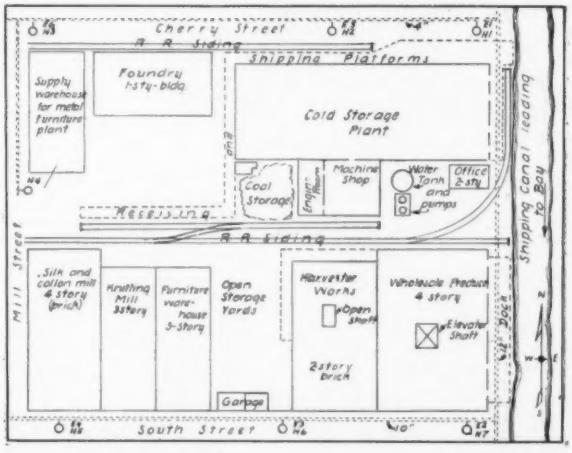
How the Fire Was Fought

The captain responding with the first alarm noted the extent of the fire and immediately transmitted a second alarm.

The assignment of companies on the first alarm was as follows: Engine Co. No. 1 at hydrant No. 1 and a single line stretched by way of the ladder to the top floor of the fire building at the rear. The ladder was placed by truck Co. No. 1 coming in on the first alarm assignment.

Engine Co. No. 2 was placed at hydrant No. 7 and a single line stretched by way of fire escapes to the top floor.

When the first company arrived on the second alarm (Engine Co. No. 3) it was placed at hydrant No. 6 and a single line stretched to the roof of the Harvester warehouse alongside



the fire building. This line operated from the roof of the Harvester building into the fire.

Engine Co. No. 4 was placed at hydrant No. 5 and a single line stretched up the stairway in the fire building to the third floor where fire was fast spreading.

This last line was laid with the assistance of members of truck Co. No. 2 who arrived on the second alarm.

At this time the fire chief reached the scene and immediately transmitted another alarm bringing in two engine companies which respond on this alarm.

Engine 5 was placed at hydrant No. 2 and a single line stretched to the third floor by way of a ladder at the rear of the fire building.

Engine Co. No. 6 was placed at hydrant No. 2 and a single line stretched to the top of the Harvester building to assist one line already in operation at this point.

Despite the best efforts the companies on the scene were able to put forth, the fire soon involved the third floor and the condition of the fourth floor with its heavy load made it advisable for all lines to withdraw from the floors below. All efforts were confined to handling the fire from the outside but it continued to spread until the top floor gave way, tearing down a part of the third floor. This spread the fire to the second floor and the ground floor.

It was a matter of a few minutes until the entire building was fully ablaze.

From this point on the department confined its efforts toward preventing the spread of the fire to adjourning and adjacent buildings.

In this it was successful, for the two lines operating at the

rear of the fire building were able to prevent the fire from spreading to the ice plant shown on the diagram. Other lines operating on the South Street side were able to prevent fire from entering the three-story Harvester warehouse.

As it was, the four-story produce building and loading platform to the east were destroyed but no other building was appreciably damaged.

The Editor's ideas on the handling of this fire will be given in the next issue of this journal.

BOY SCOUTS ORGANIZED TO AID IN PROTECTION AND RESCUE WORK

County Scout Executives of Lancaster County, Pa., Form Thirty-five Troops Into Groups of Scout Firemen

WITH the common goal of a decrease in the number of fires, scout executives in line with the fire chiefs are forming the troops of Boy Scouts into an organization to serve as assistants to the fire department.

Following closely the plans as outlined by the Spokane fire department, the Lancaster County Firemen's Association of Pennsylvania has taken the initiative in the organization of a similar unit. The work is being done under the guidance of Dr. E. M. Ranck, chairman of the fire prevention committee, and the county scout executive, Mr. Sanford.

Emblem of Scout Firemen

The boy scout who passes the required tests will receive a bronze badge of the design illustrated. The captain of each troop section will receive a silver badge with the word "captain" soldered on the face of the design, while the chief of the whole county will have a gold badge. All the badges are similar in size and design and the only differentiations of the various ranks is mainly the type of metal from which it is made.

The emblems are made by a local jeweler and are not expensive. The design has been copyrighted as the Lancaster county badge, but the association is willing to supply such emblems to whatever organization desires to follow the plan of the scout firemen. Arrangements have been made for the local troops to purchase the badges from the manufacturer, and the association has furnished somewhat of a guarantee that the number of emblems made by the jeweler will be purchased.

A school will be established for the boy scouts who wish to become scout firemen, and a set of "fire prevention rules" are being prepared to guide the boys. Special merit badges will be awarded to those attaining the required advancement in the work. The officials have lined up about thirty-five troops in line with the idea.

The following is the proposed standard test for the scout firemen for Lancaster County:

1. Know how to aid in keeping back crowds and handling traffic.
2. Demonstrate the firemen's lift and drag, and explain how to enter a room filled with smoke.
3. Explain how to turn in an alarm for fire.
4. Know how to unroll, join up, connect to hydrant; use of nozzles, extinguishers, and tools on his local fire engine.
5. Tie a bowline, Spanish bowline, timber hitch, and join two ropes with a square knot.
6. Demonstrate ability to throw a hand line.
7. Know how to rescue animals; form a bucket brigade and save property.
8. Know the treatment for burns and demonstrate the Schaeffer method of artificial respiration.
9. Show five uses of the triangular (neckerchief) bandage.
10. Explain how to put out fire in a person's clothing; prevent spread of fire in a field; and the treatment for fainting.
11. Know the location of the nearest fire alarms, fire hydrants, telephone and telegraph offices, doctors, drug stores, and so forth, and draw a map showing their location.
12. Demonstrate ability to deliver a verbal message of at least fifteen words correctly.

Plan of Organization

The group is being organized in accordance with the following rules which have been drafted for the guidance of the units:

1. This Scout group shall be known as the Lancaster County Scout Firemen.
2. The purpose shall be to promote the safety of life and property in Lancaster City and County by the prevention of fires and accidents.
3. The members of this group shall not be used in any sectarian or political endeavor, nor in any activities for mercenary gain.
4. The program shall be one which recognizes the achievements of the members by the award of badges, designating them progressively as officers of the group.
5. The slogan shall be "ALL FOR EACH."
6. The Executive Board shall consist of six men as follows: The Chairman of the Fire Prevention Committee; the Solicitor and one other member of the Lancaster County Firemen's Association; the Commissioner of Public Safety of Lancaster City; the Scout Executive, and one other from the Boy Scout Council. This Board shall appoint a Scout Fire Chief and Executive Officer and such other Officers as may be needed.
7. Meetings shall be held subject to the call of the Executive Board, but local meetings may be called by ranking officers of local fire companies and scout troops.
8. Only regularly enrolled members in good standing in chartered troops of the Lancaster County Council, Boy Scouts of America are eligible to membership. They must be at least Second Class Scouts, and must pass a standardized test as prescribed by the Executive Board and arranged for by the local Fire Company with the local scout troops as to the time and place.
9. A metal badge of rank will be awarded to each Scout who successfully passes the standard test with the approval of the local Boy Scout Court of Honor.
10. The membership of the Scout Firemen shall not exceed two hundred (200) members.
11. The Scout Fire Chief shall have direct supervision of the activities of the organization and shall direct and advise the local fire companies and scout troops in the instruction and training of Scout Firemen.
12. There shall not be more than five (5) Scout Firemen in any troop including the Captain, and the Captain shall be directly in charge of his group and his duties shall be similar to those of a patrol leader. He will be held directly responsible for his patrol of four firemen in their activities and must be at least a First Class Scout.
13. Should it become necessary to suspend a Scout Fireman from the organization he must surrender his badge and other insignia and all property belonging to the organization.
14. It will be the duty of the Executive Committee to work out and in time publish a working manual of Duties of Scout Firemen, Fire Prevention Rules and Treatment of First Aid, as well as to make changes in the standard tests when needed.

Fire Department Tests Out Boston High Pressure

Members of the Boston, Mass., fire department conducted tests on the city's high pressure water system on the famous Common of the city. The state building can be seen in the distance.

Amesbury, Mass., to Complete Station—Contracts have been let for the completion of the fire station in Amesbury, Mass.

WITH THE EDITOR

Laws Without Enforcement

Why waste time drafting regulations and organizing movements to win the public approval, if after the object has been accomplished, the aim of the measure is permitted to go to seed?

Many municipalities and civic organizations have spent years in winning the public to the establishment of a safe and sane Fourth of July. To convert mass opinion is by no means an easy task, as there is no particular type of individual for whom the message is to be directed. And yet many large cities have attained their object and had legislation passed that would prohibit the selling of fireworks within the city limits; some have even added strength to the measure by also prohibiting the discharge of fireworks.

Reports from other cities, and a casual survey of the manner in which the Fourth of July was celebrated in the local area, gives rise to the statement that the city officials have become lax in the enforcement of the law which required so much of their time to establish.

It is true that the number injured this year from firecrackers is not as great as that in former years, but we must not forget such incidents as the fire which was started in a theatre in Long Beach, L. I., from some such noisemaker and which jeopardized the lives of one thousand people.

If a law is good, it should be enforced—if the measure is not considered of value, why waste time over it?

Association With Fellow Chiefs of Great Value

Consider Rip Van Winkle! As a prominent man of his time he was a failure, but he made a valuable contribution in showing the fallacy of stepping aside from the trend of the times for a number of years and then expecting to obtain a new grip on the problems and conditions of the then present day.

A year may be a short period of time, but if one makes a mental retrospect of what has happened in the 365 days, it is forcefully brought out that many changes can develop in so short a time.

Only a year will have passed by since the convention of the International Association of Fire Chiefs in New Orleans, but changing conditions in building construction, in the mode of life of the people and of the habits of the individual, have also brought about a need for new problems in fire-fighting. The chief who attended the gathering last year and is content to rest on the information that he has acquired there or the associations that he has made with his fellow chiefs, is basing his reasoning upon a very weak major premise.

New chiefs are entering the field—men who are bringing new ideas into the work. It is advantageous to meet them and to hear their message as well as to hear from the seasoned veteran.

The association meets next month in Portland, Ore., for the exchange of ideas in a profession that is a livelihood for many. Opportunity will be afforded for making new friends and for renewing acquaintances that have been made at previous gatherings.

If you are the progessive chief that so many of your townspeople believe, you will do your best to be present at the gathering in Portland, Ore.—and good luck to you!

Consider the Scouts as Firemen

If the chiefs have ever been handed something on a silver platter, it is the organization of local troops of Boy Scouts who are eager and willing to be of some service to the community. Not only are the boys anxious to help, but the executive leaders are willing to fall in line with the plan of using the youngsters to help in reducing the fire losses.

All of the troops in Lancaster County, Pennsylvania, have been organized as Scout Firemen, and a series of tests outlined by which they can acquire information that will help them in being of service.

Each Scout is required to know how to handle crowds, and control traffic, how to transmit a verbal message of fifteen words just as it was given to him, know how to form a bucket brigade, and the location of the fire alarm boxes and hydrants in his section. In addition, he must know the rudiments of first aid.

Not much visualization is necessary to picture the assistance that the scouts could render in controlling traffic of the cars that persist in trailing after the fire apparatus or of keeping back the curious at the fires who insist in getting in the way of the firemen.

Think of the potent influence of a growing generation of boys who know the location of every fire alarm box and hydrant in the section and who know how to turn in an alarm properly.

The services of these hundreds of boys is free. All that is required is a word of encouragement from the chief and the proof that he is back of the idea.

Let the boys visit the station and know the various appliances that are used. Consider the Boy Scouts of as much value as you do the lecturers you send to such organizations as the Civic Clubs or women's societies.

Outside of the possible thrill that one gets from watching the dashing red-painted apparatus on the way to a fire, very few have a direct interest in the fire department. People may pause to look in through the open

door of a fire station and admire the polished apparatus, but of what value is that?

By utilizing the assistance of the Boy Scouts, the chief has the future citizen growing up in the atmosphere of the fire department, educated in some of its work and trained to appreciate its problems.

What an ideal propaganda agency! What an important factor in lessening some of the chief's cares!

Childish Tactics Children at play are amusing. Things proceed in their tranquil way until one of the group feels that an injury has been committed, and then a threat is made to remove the playthings. The beautiful harmony is broken up and violent disorder ensues.

So too in many fire department circles. In one city, the entire department threatened to resign unless the chief was removed. As it was far easier to remove the chief than to re-organize a new department, the chief was demoted to the ranks of a fireman. But some of the men were not even satisfied with that; they wanted him completely ousted, and they resigned.

It is one's personal liberty to leave an organization whose conduct does not fit in with his set idea of management. It is discordant, however, to the interests of the fire service to hold the power of a club over the city council when something is done that is not in full accordance with the men. Resigning is not at all difficult; but it does not display a large amount of public interest or civic pride, when an entire department threatens to leave in a body.

Much more can be accomplished by meeting around the table and playing cards face up. Most of the trouble develops because of the lack of hearing from the other side.

T. F. Dougherty, Assistant Chief, N. Y. F. D.

Deputy Chief Thomas F. Dougherty of New York City has been designated as Assistant Chief of Department, effective July 1, according to Special Order No. 124, issued by the fire commissioner and the chief of department.

Chief Dougherty will shortly receive an increase in salary from $5,500 to $6,500 a year, as is now paid to the other assistant chiefs of department, Joseph B. Martin and Patrick Walsh.

For fifteen years Chief Dougherty has been the active head of the Fire College in addition to his routine fire duties in the 5th Division. He has written and lectured extensively on the subject and only recently represented Chief Kenlon at the New England Fire Chiefs convention, where he addressed the convention.

He is the inventor of the Dougherty nozzle and the Dougherty life saving bag. He has a son a fireman. He relieves Assistant Chief Martin when the latter is off duty and he also relieves Chief Kenlon. Assistant Chief Walsh is assigned to the bureau of fire prevention.

WM. JEROME DALY.

Weldon, Pa., Dedicates Fire Station—The new $40,000 fire station erected in Weldon, Pa., was formally dedicated in the presence of a number of visiting fire companies. The building is constructed of brick and is two stories high.

Bend, Ore., Displays Old Apparatus for "Fire Brigade"—An old hand operated pump dating back to 1883 was on display in the lobby of the theatre in Bend, Ore., during the showing of the "Fire Brigade." It is known locally as the Chinese pumper because Chinese labor was drafted in case of fire to man the pump.

NEW YORK'S "SAFE AND SANE" FOURTH PRONOUNCED "A FIGURE OF SPEECH"

Fire Commissioner Dorman Shows How General Fireworks Bootlegging Has Become—52% of Fires Due to this Cause

THE "Safe and Sane" Fourth of July in New York city, so far as the fire department was concerned, was characterized by Fire Commissioner John J. Dorman as "a figure of speech" in a statement issued the day after Independence Day, in which he recited the fact that 52 per cent of 329 fires in a sixteen hour period from 8 a.m. to midnight, July 4, were due to fireworks and that 14 per cent were malicious false alarms due to boyish pranks and the spirit of the season.

Bootlegging in fireworks was never before carried on in such a wholesale manner as it was across the borders of the corporate limits of the city of New York where there is a city ordinance banning the storage, transportation and sale of fireworks. Within a stone's throw of the city limits, business men of Nassau County on Long Island and Westchester County bordering on the Bronx, set up giant stands and stalls and with brazen signs and placards reminded motorists that they were now outside the limits of the city and that they could buy all the fireworks they cared to.

Despite the vigilance of a corps of inspectors from the Bureau of Fire Prevention who watched every avenue of communication between New York and the adjacent countryside, it is conservatively estimated that at least $100,000 worth of contraband fireworks was smuggled into New York city by back roads via motor cars, moving vans and similar conveyances.

Here's One Reason Why New York's Fourth Was not Entirely "Safe and Sane"

South side of Jericho Turnpike, which is in Nassau County, lined with fireworks stands, while the north side, in Queens Borough, New York city, is bare of them, it being illegal to sell fireworks within the city limits.

This condition prevailed in the face of the record which shows that New York fire department inspectors from the bureau of fire prevention had seized 353 lots or consignments of fireworks valued at approximately $50,000 and served on the owners a summons to respond to the police court to answer a charge of having fireworks. The department inspectors made 2,601 inspections of premises where fireworks were reported to be found. Many of these were false complaints trumped up by business rivals.

The condition in New York city was so serious from the hazard and risk standpoint that plans are afoot now to take steps next year to reduce the traffic by enlisting, if possible, the aid of the authorities of the adjacent counties and states, such as New Jersey and Connecticut. Commissioner Dorman said he will prepare the campaign right away and not wait until next May or June.

Contempt for law and order and the deliberate disregard of the lives and property of others was manifested by boys in the streets who actually threw exploding firecrackers at fire apparatus as it was speeding by to a fire. The city authorities had as customary gone to unusual ends to provide the populace with other means of entertainment and diversion, such as band concerts, parades, public speaking, etc., but the din and the racket of July 4, 1927, was without precedent in at least ten or fifteen years.

WM. JEROME DALY.

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Value of Variety of Extinguishers

To the Editor:

We have two fire extinguishers of the soda acid type on our fire apparatus and we have been thinking about replacing or having about two more on the apparatus of the carbon tetrachloride type.

Do you consider this much better than the soda acid type for fires such as gasoline and so forth. If so would you advise keeping part of the soda acid type or using this other type of extinguisher.

I like the tetrachloride better for several reasons and I am asking for your opinion on the matter.

Very truly yours,

S. D.
Murphy, N. C.

Answer: We do not consider that it would be good practice to remove the two soda and acid extinguishers from your fire truck and replace them with carbon tetrachloride. We do, however, consider it would be a very wise move to add two additional extinguishers (carbon tetrachloride) to your present equipment.

The soda and acid extinguishers have a much greater extinguishing capacity than the quart carbon tetrachloride on ordinary fires while the carbon tetrachloride is particularly useful on electrical and sub-oil fires.

Either one would not serve both purposes, but both types together complete your equipment.

On small fires in closely confined quarters the small carbon tetrachloride extinguishers are not as suitable as the 2½ gallons soda and acid which have both the range of stream and the extinguishing effect necessary on fires which have gained a hold.

The best move would be to have both the soda and acid, and the carbon tetrachloride available on your apparatus.

Do Steam Pipes Cause Fires?

To the Editor:

Please let me know who is right in the following discussion:

A says a steam pipe running through a wooden partition will cause a fire if wood is constantly in contact with pipe.

B says a steam pipe or line will not cause fire at any time.

M. T. McC.

Answer: A is correct. Steam pipes have been known to cause fire through being in contact with wooden floors, and hence would likely act the same way in the case of wooden partitions.

The action of the steam pipe when hot is to char the wood. It may take quite a long time to accomplish this but it is assumed that in the statement in your letter no time limit is set on the contact between pipe and wood. After the wood has become charred a subsequent heating will drive out the air to a large extent. Then if the pipe is suddenly cooled, the air is rapidly absorbed again by the charcoal or charred wood with the result that there is an action between the oxygen of the air and the charred wood which produces heat. Some subsequent reaction of this sort may raise the temperature of the charred wood sufficiently high to ignite it.

The fact that there have been a number of instances on record where steam pipes have set fire to wood in contact with them shows that it is perfectly possible for such pipes when charged with steam to set fire to wooden partitions.

Extinguishers, Lime, Etc.

To the Editor:

Below are a few questions I wish you would answer in an early issue of your journal. I will appreciate your running each answer after the corresponding question instead of putting them all together at the end.

Very truly yours,

W. D.

Question: Can a soda and acid extinguisher with a loose stopple be successfully used on a auto fire truck?

Answer: Not very well. The loose stopple will possibly be bounced out due to the truck running over rough surfaces with the result that acid will become mixed with the soda solution and partially or completely discharge the extinguisher.

Question: Is there any danger from slacking lime in open space?

Answer: No. The danger from lime occurs where there is a confined space or where the lime, due to its increasing in temperature on becoming slacked, might increase the intensity of fire or start fire. Lime is slacked by adding water. Slow slacking may take place if in contact with moist air. Where lime is in confined quarters with combustible materials around, slacking it by using water on it will cause an increase in temperature and may result in fire. If fire is present, the lime increases the intensity of it.

Question: Water thrown on an intense fire, is water actually vaporized?

Answer: Yes. Water being thrown on an intense fire first vaporizes. If the vapor remains in contact with intense heat, the vapor may be broken up into two gases, hydrogen and oxygen. These gases will burn while in contact with the fire. However, water thrown on an intense fire must first vaporize before it can be broken up into its constituent gases.

Question: Will the force of a stream striking a steel beam in a fire bend the beam?

Answer: No. If there is bending or warping it is due to the uneven chilling of the heated metal surfaces by the water.

New York Promotional Questions.

To the Editor:

Will you please answer the following N. Y. Captain Promotion Examination Questions, which were asked at an examination in 1923, in your Questions and Answers Department?

Very truly yours,

A. T. F.

Question 1: A second size engine is pumping through 8 lengths of 3-in. hose to the sidewalk in front of a burning building whence 5 lengths of 2½-in. hose are stretched up the staircase to the fourth floor. The nozzle used is 1⅛-in. and the nozzle pressure is 55 lbs. Find (a) the friction loss in hose? (b) the engine pressure, and (c) nozzle discharge.

Give all the needed formulae and calculations. No credit will be given for estimates or guesses.

Question 2: (a) To what height can an effective stream be thrown through the windows of a burning building from a nozzle held in a pipe holder at the street level? Four lengths from the engine? What size of nozzle would you use for the most effective stream; where would you place it, and how direct the stream?

(B) To what height may a line be advantageously stretched up an outside fire escape? What hose would you use?

(C) State the comparative advantages and disadvantages of: (1) a long or short nozzle; (2) a large or small nozzle, and (3) a shut-off or smooth bore nozzle, and special conditions for which you would use each of above?

Question 3: (A) a 35-ft. ladder is placed against the side of a burning building. Explain how far it should be put from the wall and why. What precautions are necessary: (1) If a line of hose is to be stretched up the ladder and the stream played into a window; (2) If the ladder is to be used for rescue purposes. In each case give definite reasons? (3) After a fire has badly damaged a 4-story non-fire proof building in which are stored rags, baled waste paper, etc., what are the dangers and what precautions must be exercised in overhauling?

Question 4: What action would you take if called to help in the following cases? (A) A man has fallen through a sewer manhole. (B) Two boys were scuffling in an ascending elevator as it left the fifth floor of an office building. One boy's leg was caught near the knee between the shaft wall and the front of the elevator floor, the car was wedged; there are ten passengers on it. (C) A man fell from the platform in a subway station. An approaching train hit him and stopped in two car lengths. The body of the man is near the rail on the platform side under the second car.

Question 5: (A) If ordered to cut a hole through a tar and gravel roof on a five story building for the purposes of ventilation, gaining access thereto by raising a ladder, explain in detail how you would do the work. (B) a six story factory building equipped with a balcony fire escape, which, however, does not extend to the roof, is thoroughly charged with smoke. Describe how you would ventilate if working from the outside.

Answer 1: First solve for discharge. This will make the calculations for friction loss simple.

Discharge from a 1⅛ in. nozzle at 55 lbs. pressure is found by the formula as follows. Discharge=30 x 1⅛ x 1⅛ x √55

=30 x 1.125 x 1.125 x 7.41

=281 G.P.M. approximately

Now convert the 400 ft. of 3-in. hose to 2½-in. hose by dividing by the factor 2.6 (which is the factor for reducing 3-in. hose to 2½-in. hose).

400÷2.6=154 ft. of 2½-in. hose approximately.

The total length of 2½-in. hose in the new layout will then be 154+250 ft. (the amount used in running up through the building) or a total of 404 ft. approximately.

Friction loss is found by the following formula. Friction loss per 100 ft. of 2½-in. hose=2 x Q x Q + Q.

Where Q is the flow measured in hundreds of gallons per minute.

As the flow is 281 G.P.M., Q will be 2.81.

The friction loss per 100 ft.= 2 x 2.81 x 2.81 + 281 or 18.6 lbs.

There are in the 404 feet of hose 4.04 hundreds ft. of hose. The friction loss in the total length will then be 4.04 x 18.6 = 75.144 lbs.

In solving for engine pressure, the engine pressure, disregarding the back pressure due to the elevation of the nozzle, will first be calculated, and then the back pressure added on to the calculated engine pressure to get the correct engine pressure.

Neglecting the back pressure, the engine pressure = N. P.' (1.1 + K x L)

= 55 (1.1 + .167 x 8.08) where 0.167 is the value of K for 2½-in. hose and 1⅛-in. nozzle; and 8.08 the number of 50-ft. sections of hose in the layout.

E. P. = 55 x 2.44936

= 134.7 lbs.

But the engine pressure will also have to take care of a back pressure represented by the elevation of the nozzle above the street. Three stories total 36 ft. (at 12 ft. per story) and allowing 4 ft. for elevation of the nozzle above the floor on the 4th floor will give a total elevation of 40 ft. of the nozzle above the street. Back pressure then = 40 x .434 = 17.36 lbs.

Corrected engine pressure = 134.7 + 17.36 = 152 lbs. approximately.

Answer 2: The effective height of a stream is determined by its angularity, where the stream is being directed into a burning building. An angle of 45° is considered the maximum for effective operation of a stream being thrown through a window. At this rate, the height an effective stream so employed would reach would be approximately equal to the distance of the nozzle from the building. If the sidewalk is 10 ft. wide and the roadway is 30 ft., for instance, then a stream could reach a height of 40 ft. effectively when entering a window.

If the roadway was 40 ft. wide, then the stream could reach in on to the 4th floor; if the roadway were 50 ft. wide and the side walk 10 or 12 ft., the stream could be directed into the 5th floor of the burning building.

Where the layout of hose is not given, the distance of the engine from the nozzle, unless excessive, does not affect the above statement. The fact that the engine is 4 lengths from the nozzle does not tell anything for the layout is not given, nor is the engine pressure.

As to the size of the nozzle employed, A 1½-in. nozzle would prove very effective, for it would be sufficiently large for operating from the street and the stream from it could readily be handled with the pipe holder. Only in the event that fire had gained great intensity and it was necessary to cover exposures and direct the stream over the face of the building would a larger size nozzle be justified. 1¼-in. nozzles are frequently employed for outside work but as long as the holder is available better results may be obtained by the use of the 1½-in. stream.

Assume that the fire has gained considerable headway in the building because if this were not so a stream would not be operated from the street to the higher floors of the building.

As to the placement of the nozzle it is usually placed on the roadway of the street against the opposite curb. The stream is directed so as to strike the ceiling within the building and spray over the largest area possible. Where necessary the stream is shifted from window to window in order to accomplish greatest results.

(b) Ordinarily the 5th floor is considered the maximum height to which a line may be stretched up an outside fire escape advantageously. However, with the new method of sending the line up with hook and chain, the 6th and 7th floors could readily be reached with a line. In this latter case care must be taken to properly support the line, preferably at every second landing on the fire escape in order to take undue strain off the couplings when the hose is charged. 2½-in. hose is employed for this work as it is much more flexible than the 3-in.

(1) A long nozzle is ordinarily employed to secure a greater range of stream, while a short nozzle is employed for close-up work or inside work. The short nozzle does not give as solid a stream as a long nozzle, there being a tendency for the stream to break and spray earlier.

A long nozzle can better be handled by several men whereas a short nozzle is more effective for getting in close.

(2) A large nozzle has a greater carrying capacity and therefore a greater extinguishing effect than a small nozzle. At the same time a large nozzle is harder to handle, requires a greater water supply and in general is more unwieldy. A small nozzle is readily employed and can be shifted from point to point; it also permits close-up work. In general, a large nozzle is most suitable for large fires and a small nozzle for incipient fires or inside work.

(3) A shut-off nozzle avoids waste of water and unnecessary water damage. It permits shifting of streams more conveniently than does the open or smooth bore nozzle. It has all the advantages of a smooth bore nozzle of the same size and the additional advantage of having the water flow under control at all times.

Smooth bore nozzles are employed where there is not apt to be much changing of position and where they are likely to be required to operate for some time without interruption; also where fire of a considerable body is burning.

A shut-off nozzle is employed where it may be necessary to stop the flow of water from time to time while the line is shifted or while fires at different point are killed.

Answer 3: A. Assuming a trussed ladder is referred to, the distance of its base from the building is calculated by dividing the length of the ladder by 5 and adding 2. 35/5=7+2=9 which is the distance the base must be placed away from the building. In other words a 35 ft. ladder placed against a building in proper position has its base 9 feet from the building.

(1) Where a line of hose is to be stretched up a ladder and a stream played into a window, the first precaution to be taken is to be sure that the ladder is securely placed so that it will not slip when the line is charged and put in operation. The ladder should be so palced that it will not be apt to be tipped outward when the stream is started. There is a reaction from the nozzle and if a large nozzle is employed there is a possibility of the reaction being great enough to force the top of the ladder away from the building. Make sure that this point is covered before the stream is opened up. In some instances the ladder placed against a building is secured by a rope or hose strap so that it will not be forced outward by the reaction of the stream.

(2) The chief precaution to take where a ladder is to be used for rescue purposes is not to overload it. Inspect the ladder to see that it is neither scorched nor impaired in any other manner before employing. Most fire departments take care of this by having systematic inspections of all ladder equipment and this is the best method of avoiding accidents. See that the ladder is not subjected to a greater load than ordinarily permitted in fire fighting operations. If it must be used for rescue work horizontally, two ladders should be placed together if they are to carry loads greater than that ordinarily required of them in fire department operations.

(B) The chief danger in this case is the excess load likely to be found in the building. Materials mentioned readily absorb water in great quantities and every pound of water absorbed means a pound more load on the floors.

Then, too, the condition of the building after the fire where various members are weakened through exposure to fire makes a combination of the excess weight and the weakened buildings a serious matter.

The chief precaution to take in overhauling in this case is to keep the men off the floors until it is certain that the floors have not been weakened by the fire or until the floors have properly drained of excess water. Then when the men are working on the floors they should be kept near windows or near walls until some of the heavier materials are moved up against the walls to take the load off the center of the floors.

Answer 4: (A) Call rescue squad, which is equipped with proper rescue apparatus to be used in cases where dangerous gasses are present. Notify officials in charge of sewer departments so that a foreman may be sent who is familiar with the sewer layout. If ladder equipment is not on hand, transmit a call for truck company. In case of a large sewer it is possible that the victim's body will be carried along, if he is overcome. In this case it is necessary to have men equipped with gas masks or helmets enter sewer at point below where man fell

(*Continued on page* 704)

Coast Guests Won't Forget This Trip

Trip on August 8th in Portland, Ore., Along Columbia River Highway Will be One Long Remembered—To Go, Arrive Early

WHAT will probably be the most outstanding event in the series of entertainment features that is being prepared for the visitors to the convention of the International Association of Fire Chiefs at Portland, Oregon, will be the trip by auto along the famous Columbia River Highway on the way to Mount Hood. This trip will take place on

Left: Horse Tail Falls. Right: Mount Hood and Hood River Valley Orchards.

August 8, one day prior to the official opening of the convention, and therefore, those who plan to attend the convention will do well to arrive in Portland a day ahead.

This plan was made so that the pleasure trip will not interfere with the business of the convention. Many of the organized trips such as that of the Eastern Regulars will bring the visitors in that city in ample time.

The men and chiefs along the coast who have arranged this trip state that it is hardly possible to paint a word picture of the wonderful scenery along the trip. In order to give one a conception of what the traveler will see on this trip, and what those who stay away will miss, the following outline is given.

Between Portland and Hood River lays the great gorge of the Columbia River—a chasm 2,000 feet deep, which has been carved straight through the backbone of the Cascade Mountains. Although the entire distance is only 69 miles by auto, train or steamer—there is crammed within this short stretch a natural wonderland, which for magnificence has no equal on the American continent.

Immense pinnacles of basalt, so high that they sweep the clouds; waterfalls that spring from cliffs, hundreds of feet above their foamy bowls; millions of flowers and ferns and forest giants, have all joined to give humankind a playground as beautiful as it is rare.

And man, through a feat of skill counted as one of the modern miracles of engineering, has provided a broad, safe, paved thoroughfare which makes them all easily and quickly accessible. To enjoy the scenic beauties of the upper highway to the fullest, the autoist should lower the top of the car.

Columbia River Highway

Cross Broadway Bridge, east along Broadway to Sandy Boulevard to Columbia River Highway.

City Limits, 5.7 miles, 82nd and Sandy Boulevard. Shriners' Hospital for Children, 5.8 miles—The Pacific Northwest District Hospital of the Shriners' National Hospital program for children.

County Farm, 14.2 miles—In the heart of a beautiful dairying and farming country, on the banks of the Columbia.

Troutdale, 15.3 miles—At the mouth of the Sandy River, famous for its run of smelt. The highway turns up the Sandy river canyon, a marvelous gorge of beauty that prepares the traveler for the delights that are to come.

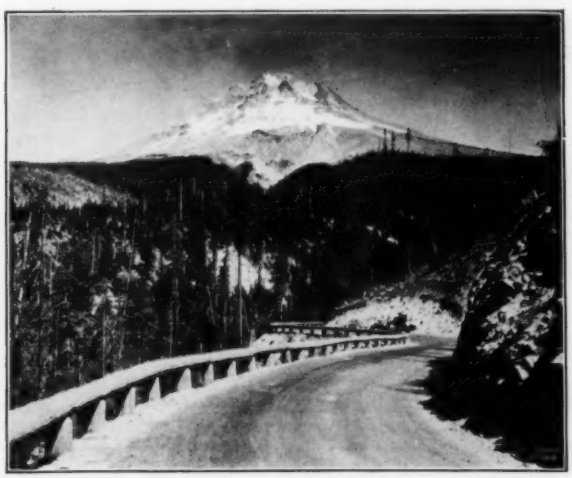
Upper Sandy Bridge, 18.5 miles—Across this bridge are the grounds of the Shrine Club.

Springdale, 20.2 miles. Corbett Heights 22.7 miles. Chanticleer, 24.3 miles—A delightful inn, situated on a commanding point at an elevation of 890 feet.

Summit on the Bluffs, 24.5 miles—The highest point on the highway, an elevation of 925 feet.

Crown Point Chalet—A spacious and well-appointed hostelry above the highway. Crown Point, 25.5 miles—The summit of Crown Point is 725 feet above sea level and covers an area of two acres. It gives an unsurpassed view of 35 miles both east and west of the mighty Columbia River. To the north lies the beautiful landscape on the Washington shore, backed by

Indians Spearing Salmon at Celilo Falls. Columbia River Highway Passes This Point.



Mount Hood As It Looks From Laurel Hill on Mount Hood Loop.

an imposing mountain silhouette. At the base of the point stands Rooster Rock. "Vista House," on the summit of the crest, is an imposing memorial to Oregon pioneers and a resting place for highway visitors.

The Figure Eight, 26.7 miles—The figure eight, with its eight loops represents a masterpiece of highway engineering skill, with its easy grade of 5 per cent. It passes through a stretch of wild beauty of forest and ferns.

Latourell Falls, 27.8 miles—The first of the many falls along the next 11 miles of roadway. The falls drop 227 feet.

Sheppard's Dell, 29 miles—A picturesque spot of 11 acres of rugged beauty, including falls and forest delights. It was

Bonneville Fish Hatchery—The Largest in the World

presented to the city of Portland by Mr. George Sheppard for use as a public park.

Forest Hall, 29.6 miles—Behind this charming hostelry are the "Pillars of Hercules," two basaltic columns rising abruptly on either side of the railroad track.

Bridal Veil Bridge, 30.0 miles—The Bridal Veil Falls are immediately beneath the bridge, and not visible until you are well along on the north stretch of the curve east of the bridge.

Coopey Falls, 30.9 miles. Angel's Rest, 31.5 miles—A high and noticeable point, elevation 1,500 feet.

Mist Falls, 32.9 miles—The falls tumble down the face of the cliff, in stages, for 1,200 feet.

Wahkeena Falls, 33.2 miles—One of the most beautiful streams of the highway. A winding trail at the right leads up to a bridge that spans the stream, from which a fine view of the lower falls can be had. Upper and lower Wahkeena Falls, Ghost Falls, and "Look See" point are attractions of this trail, which leads along the summit of the cliffs to another trail winding up from Multnomah Falls.

Multnomah Falls

A masterpiece of scenic beauty and the largest falls along the highway. The upper falls have a drop of 541 feet and the lower 69 feet. A short cascade flows between the two, which is spanned by the "Benson Bridge," from which a wonderful view of the upper falls is obtained. At the farther end of the bridge, a trail zigzags up the mountain side, offering a wide view of the Columbia river and the highway below. The trail continues to the head of the Multnomah Falls, and from there goes up Larch Mountain, a commanding viewpoint of the entire mountain country. From its summit, a perfect view of Mt. Hood, the majestic guardian of the whole district, is obtained.

Bonneville Fish Hatchery

From Multnomah Falls, the highway continues over the East Viaduct, 34 miles from Portland.

Oneonta Gorge and Tunnel, 35.9 miles—A delightful chasm, moss covered and cool, affording a new and beautiful glimpse of the beauties of the Columbia Gorge country.

Horse Tail Falls, 36.1 miles—These falls are right alongside the highway and have a sheer drop of 180 feet, with a sparkling pool at the base.

St. Peter's Dome, 37.3 miles—Cathedral Point and Katani Mountain are the three prominent points located at the right. Yeon Mountain with an elevation of 3,878 feet, lies just east of St. Peter's Dome.

Beacon Rock, 39.0 miles—Directly opposite on the Washington shore stands this stately rock and is visible for miles along the highway. It was named by Lewis and Clark on their famous expedition to the Pacific Coast.

McCord Creek and Bridge, 40.2 miles—Here the visitor gets his first glimpse of the Columbia River fish wheel. To the right, when crossing the bridge, are seen several beautiful waterfalls tumbling down the cliffs. At the east end of the bridge, a petrified tree standing upright in the clay may be seen.

Bonneville, 42.8 miles—One of the largest fish hatcheries in the world is located at this point. Here you may see the methods used in the artificial propagation of trout and salmon.

Tanner Creek, which comes down from the mountains at this point, is a beautiful stream, much favored by fishermen.

Leaving Bonneville, after a short stop to go through the hatchery, Wauna Point, a commanding summit 2,500 feet high is noticed. A trail leading to its top leaves the highway a short distance east from Bonneville.

Summit or Eagle's Nest, 43.9 miles—Just before beginning to descend the grade down to Eagle Creek, is the point or "toe" on which rested the Oregon end of the fabled "Bridge of the Gods," which according to Indian Lore, once spanned the mighty Columbia. Table Mountain on the opposite shore, with an elevation of 3,420 feet, was supposed to have been the northern pier.

Eagle Creek, 44.3 miles—The most favored picknicking and camping spot on the highway. Bake ovens and numerous tables are scattered throughout the woods near the creek, making an excellent luncheon spot. This district is under the supervision of the United States Government Forestry Service. A trail leading up Eagle Creek to Wahtum Lake and Chinidere Mountain, a distance of 15 miles, offers easy travelling to those who wish to get back into the mountains. Metlako Falls is two miles up. The "Devil's Punch Bowl," two and a half, and the High Bridge, four miles up the trail are well worth the time necessary to see them.

From Eagle Creek, the highway continues along the high bluffs of the Columbia.

Cascade Locks, 48 miles—Here the great waters of the Columbia are confined to a narrow gorge and plunge through in wild fury. Legend has it that these rapids were formed by the falling of the "Bridge of the Gods," as recorded in the Indian legends. The United States Government has constructed a series of locks around the rapids to make the stream navigable.

To Hood River

From Cascade Locks the first noticeable change in the type of scenery begins. The "backbone" of the Cascade range has been passed, and a gradual opening up of the Columbia gorge is noted.

On the Washington side is Wind mountain, a conical moun-

Business District of Portland, With Mount Hood in the Background.

tain that derives its name from the peculiar gales that blow around it. Back of the mountain, Wind river empties into the Columbia.

Mitchell's Point, 62 miles—A day-lighted tunnel through this cliff affords unique views through its "windows." No parking of cars is allowed in the tunnel. Use the place provided at the east end and walk back to the tunnel to get this superb scenic effect.

(Continued on page 710)

Big Blaze in One Hundred Year Old Lion Brewery, in New York City, Caused, It Is Thought, By a Carelessly Thrown Firecracker

FOUR ALARM BREWERY FIRE CAUSED BY "FOURTH" FIRECRACKER

Old Lion Brewery, in New York City, Partly Destroyed in Big Blaze —Part of Plant Saved by Firemen

THE main buildings of the Lion Brewery, Columbus Avenue, from 107th to 108 Streets, New York city, built over 100 years ago, were burned on July 4, the structures being practically destroyed. The more modern ice factory and stables were not damaged. These were situated to the west and north of the wrecked part.

It is believed that boys either tossed lighted firecrackers on the old, inflammable roof, or through one of the windows. Youths playing ball in the street discovered the fire about 3 p. m., and gave the alarm. There were only two watchmen on the premises, all of the employees having left.

When the first alarm apparatus arrived, the fire had obtained considerable headway, and three more alarms were turned in. Acting and Assistant Chief Thomas F. Dougherty assumed charge, and one of his first acts was to stop traffic on the Sixth and Ninth Avenue elevated lines, which at this point use the same tracks, and he would not permit resumption of traffic until 5:25 o'clock, when all danger was past.

At the early part of the fire, it was discovered that the entire ice-making system pipes were filled with hundreds of gallons of ammonia, and these were quickly pumped into reserve tanks far from the Columbus Avenue side of the building, where the flames were concentrated.

A large amount of grain used in brewing the near-beer made by the plant smouldered for a long time after the fire was extinguished. A great number of half-wild cats, bred by the brewery people to keep mice from the grain, were burned to death or suffocated in the basement of the building, where the grain was stored. Two or three kittens, half dead with the smoke, were rescued from the roof by the firemen.

Most of the 20,000 barrells of near-beer in the cellar in vats, was salvaged. The loss was estimated at over $250,000.

The founder of the brewery years ago had a farm that extended from 106th to 110 Street and from Amsterdam Avenue to Central Park. The old Schmidt homestead, a frame house, still stands on the north side of 108th Street half way between Columbus and Amsterdam Avenues. The brewery first was known as Schmidt & Speyer, and later as Bernheimer & Schmidt. It became the Lion Brewery in 1850.

Kenlon Talks on Tenement Loss

Chief John Kenlon appeared before the Commission for the Revision of the Tenement House in New York city and gave constructive suggestions as how to settle the problem.

In discussing the present tenement law, Chief Kenlon said that it is so peculiarly worded at present that the fire department does not know whether it has the right to enter a building even when the building is burning. He urged that the law be worded so that the firemen will be permitted to enter at any time for inspection work—in this manner the fire losses would be cut down at least fifty per cent.

Bringing up the problem of the old style tenement building in New York city, Chief Kenlon said, "I don't intend to get into the confiscation business. We have 30,000 buildings inherited from an earlier day that were built in compliance with law. Let the city and state help the owners out through a limited dividend proposition."

During the two hours that he appeared before the commission he brought out that the interior stairways were of little use when a building was on fire for openings became filled with smoke.

There is no particular effective way of lessening the hazard from smoke although an automatic skylight is of some benefit.

In the tenements it is customary to leave the baby carriages with pillows, blankets and spreads in them in the hallways. Late at night when other occupants of the building have returned and the lights are out, it is necessary to light a match to see the way. The match is then tossed over the bannister and frequently falls into the baby carriages at the bottom. In twenty minutes the whole building is ablaze from top to bottom.

He also touched on other phases of the fire protection problem in reference to the construction of tenement buildings.

Fire Destroys Eight Oil Wells in Long Beach, Cal.

Fire, declared to be the most severe in California, destroyed eight wells at Long Beach at Alamitos Heights. The damages are said to exceed $1,000,000, and two oil workers were severely injured by the initial blast. The intense white flames can be seen here demolishing the derrick.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending July 1

GORDON, TEX.—Plant of Lone Star Gas Company..... 80
GODERICH, ONT.—Goderich Mfg. Co. plant..... 65
SOMERVILLE, MASS.—Buildings of North Packing & Provision Company..... 65
ALTON, IA.—General store of Henry Eggink destroyed..... 50
MONONGAHELA, PA.—Four buildings destroyed..... 80
WHITLEY CITY, KY.—McCreary County Court House..... 65
WELLSBURG, W. VA.—Sigma Nu House, Bethany College..... 85
BROOKLYN, N. Y.—Empire Tinware Company plant..... 40
CHICAGO, ILL.—Paint store of Chas. Novak & Sons..... 65
MIFFLINBURG, PA.—Mifflinburg Body Co. and adj. property.. 50
LUDINGTON, MICH.—Wolverine Fruit Packing plant..... 80
S. FRAMINGHAM, MASS.—Grain elevator, G. Cushing & Co.. 80
PAWTUCKET, R. I.—Stores in Beswick Block damaged..... 30
CRICHTON, ALA.—Main plant of Stover Lumber Co..... 100
LONG BEACH, CAL.—Eight wells, Alamitos Heights field.... 800
PALMERTOWN, CONN.—Warehouse of Massasoit Co..... 40
LOCKPORT, N. Y.—Summer residences, Olcott Beach (12mi. n.) 65
CHICAGO, ILL.—Fertilizer plant of Armour & Co..... 180
EAST WILLISTON, L. I., N. Y.—Bldgs. on farm of W. W. Stofhoff..... 30
MOBILE, ALA.—Lumber yard and several dwellings..... 140
ALMA, MICH.—Look-Paterson drug store damaged..... 40
ELIZABETH CITY, N. C.—Store of Sharber & White Company. 50
FALLS MILLS, W. VA.—Residence of Capt. C. M. Jennings.. 75
BLUEFIELD, W. VA.—Community Welfare Bldg. and adjoining property..... 40
WASHINGTON, D. C.—Underground cables of Potomac Elec. Co..... 60
CHICAGO, ILL.—Property of White City Amusement Co..... 200
BRADDOCK, PA.—J. Lackman & Co. Feed Store destroyed.. 40
BLUFFTON, IND.—Bldgs. of G. W. Grimes Foundry Co..... 40
SANFORD, ME.—Business bldg. Washington & Mechanic Sts.. 65
CAMDEN, ARK.—Plant of Arkansas Baking Company..... 40
ALEXANDER CITY, ALA.—Several business establishments.. 25
PRESCOTT, ARIZ.—Residence of Lester Ruffner destroyed.... 25
PORT ARENA, CALIF.—Post office and adjoining property... 180
SAULT STE. MARIE, ONT.—Patterson Bros. jewelry store.... 30
DEKALB, ILL.—Several depts. of American Steel & Wire Corp. 170
BORDENSHAFT, Md.—Property of Consolidated Coal Co..... 80
ST. PAUL, MINN.—Midwest Chemical Company & adj. property..... 100
MOOREFIELD, W. VA.—Inskeep Hall..... 40

Week Ending July 8

PITTSBURGH, PA.—Plant of Pittsburgh Press damaged.... 40
LOS ANGELES, CALIF.—Yacht Seaward of C. B. DeMille.. 25
FEDERALSBURG, MD.—Oil station of Holtz Oil Company.... 50
DANVILLE, VA.—Main traffic bridge destroyed..... 80
BLUFFTON, IND.—Bldg of Grimes foundry destroyed..... 25
MUNCIE, IND.—Store of Ralph Stout damaged..... 25
DOLLAR BAY, MICH.—Sawmill, Dollar Bay Lumber Co.... 40
PHILADELPHIA, PA.—Five shipways, Hog Island Ship Yards. 65
ROCHESTER, N. Y.—Plant of Rochester Fur Dressing Co.. 30
OSCEOLA, CALIF.—Stamp mill and mine plant destroyed... 45
MADERA, CALIF.—Madera High School destroyed..... 40
MIAMI BEACH, FLA.—Wofford Hotel damaged..... 35
GROVE CITY, PA.—To business blocks destroyed..... 80
GREENSBURG, PA.—Harris Bldg., S. Main St., damaged.... 30
MADISON, MO.—The John Tyhurst restaurant and adj. property 60
AKRON, O.—J. R. Guth block damaged..... 250
FERNIE, B. C.—Shops of Morrissey, Fernie & Michel R. R.... 40
MINNEAPOLIS, MINN.—Garage of East Hennepin Automobile Co..... 35
SNOW HILL, MD.—Property of Austin Warren destroyed.... 25
BUFFALO, N. Y.—Yard of Buffalo Lumber & Mill Corp.... 40
GULFPORT, MISS.—Property of Woods Bros. of Lincoln, Nebr..... 80
ATLANTIC CITY, N. J.—Boardwalk property—Missouri & Arkansas Aves..... 250
BLACKSTONE, MASS.—Greene Block, St. Paul St. damaged.. 80
WICKLIFFE, KY.—Several business establishments damaged.. 40
NEW YORK, N. Y.—Pacific Steam Navigation Liner "Ebro".. 50
HAHIRA, GA.—Union Tobacco Warehouse damaged..... 125
HASTINGS, PA.—Commons Theatre and adjacent business property..... 80
WOODLAND, CALIF.—Property of River Garden Farms..... 65
SAN FRANCISCO, CALIF.—Building of Pacific Bag Co. destroyed..... 250
ROCKAWAY BEACH, N. Y.—Ocean front property destroyed.. 100
TIMMINS, ONT.—Stores in Schumacher business district..... 25
NEDERLAND, COLO.—Mill of Wolf Tongue Mining Co..... 800
ELKHART, IND.—Stockroom of Valley Motor Truck Co..... 250
McALESTER, OKLA.—Building at Oklahoma State Penitentiary 125
PACHECO, CALIF.—Business structures destroyed..... 40
YOLO, CALIF.—Main business block destroyed..... 30
JAMESTOWN, N. Y.—Chautauqua Candy Co. damaged..... 40

Enosburg Falls, Vt., Receives Maxim Pumper—A Maxim pumper has been delivered to Enosburg Falls, Vt., and following the customary tests, it was accepted by the town. The pumper has a capacity of 400-gallons.

OFFICE OF FIRE MARSHAL TEACHES FIRE PREVENTION METHODS IN OHIO

Formerly Department Was Only Concerned in Investigating Arson Cases — Many Agencies Available to Carry on Education Work

By CHARLES S. MAGRUDER,*
Division of State Fire Marshal, Columbus, Ohio

THE Division of State Fire Marshal is maintained by tax on insurance premiums, but we feel that we owe our first allegiance to the public who pay that tax and next, the Fire Chiefs of Ohio. In fact we consider the chiefs the most important part of our organization.

The Division of State Fire Marshal in Ohio, is the oldest department of the kind in the United States, having been established in 1900. It was originally simply a police office, established and maintained for the purpose of investigating suspicious fires and prosecuting those guilty of arson. According to our records, the second fire marshal in office had a vision of fire prevention but it was only a dream, but each succeeding official realizing as he did that while the arsonist might be charged with from five to ten per cent of our fire waste, that from seventy to eighty per cent should be charged to carelessness or neglect, each in turn devoted more time and attention to the subject of fire prevention than did his predecessor, without, however, neglecting the original purpose of the office. During the last three years we have investigated every suspicious fire that was reported thoroughly and as promptly as the facilities allowed us by the last legislature, would permit. Our record for convictions compares favorably with that of any previous administration.

But before Mr. Miller, our present Fire Marshal, had been in office ten days, he realized that fire prevention was the most important branch of our work.

Formerly, Few Chiefs Were Interested

At that time, only three years ago, not more than one-half of the fire chiefs of Ohio had any interest in fire prevention, and most of those who had, had become discouraged and disgusted. At that time, there were fire chiefs in the state, who when a serious fire hazard was reported to them would insist that it was none of their business, but would say: "When the fire starts let us know and we will come down and put it out." We found chiefs who admitted that they had never been inside of a school building since they quit school, possibly twenty years before. Many of the chiefs of the state were continually worried because they did not have a sufficient number of fires to keep them busy, and were afraid that the people would come to the conclusion that their work was unnecessary and they would lose their jobs. We found that it was necessary to educate, not only the chiefs, but the public, and for over a year we conducted a continuous campaign of publicity that taxed the patience of the newspaper owners almost to the breaking point, but we accomplished our purpose.

I am glad to report that most of the chiefs, of the class to which I have referred, have retired, been retired or have reformed, and many of the latter class are today among the best fire prevention chiefs in the state.

Not Concerned With Present Generation

Three years ago, practically all of the advocates of fire prevention in Ohio insisted that we could do nothing with the present generation and that our hope lay in the future by educating the children. We did not believe that then and certainly do not believe it now, but we did not neglect that advice. We were fortunate in securing the services of a woman as an Assistant State Fire Marshal, who during the last three years has addressed over four hundred thousand school children in Ohio. She thoroughly understands the psychology of childhood and is able to implant her message into the minds of the children from the lowest grades to the high school, making of them militant, aggressive advocates of fire prevention, frequently for life, and through them she sends her message into the homes in the most effective manner possible.

As I stated three years ago most of the fire chiefs who were interested in fire prevention had become discouraged and disgusted, for in spite of all that they had done they saw the fire loss amounting regularly year after year and, naturally, asked "What's the use?" We had but two arguments of encouragement to offer at that time. First, though the fire loss is increasing, what would it be had it not been for the work that you have done, and, second, the losses are not increasing as rapidly as are

*Extracts of paper read at the Ninth Annual Convention of the Ohio Fire Chiefs' Association.

the values involved, but neither explanation was entirely satisfactory. They could not point to a record of real achievement.

It is no longer necessary for us to apologize or explain to the agencies who are assisting us in this work. We can now point to a record of real achievement.

Loss of Life Reduced

Let us go a little further back—two years ago at our convention in Columbus, Chief Moser in responding to the address of welcome, delivered by Director of Commerce Cyrus Locher, used a figure which I gave him, to the effect that three hundred and fifty-three people had been burned to death in Ohio during the previous year. Captain Conway, of Cincinnati, one of the greatest advocates of fire prevention in Ohio, or in the country, called me to one side and stated that he could not believe that that figure was correct. We had secured this information from the daily papers and two clipping services. It was not corect—it was not complete. In 1924, the Bureau of Vital Statistics functioned on a one hundred per cent basis for the first time, and at the end of that year they reported that five hundred and one people had been burned to death in Ohio. A few weeks ago, we secured their report for the year of 1925, and it showed that three hundred and seventy-one lives had been lost in Ohio by fire. From five hundred and one to three hundred and seventy-one, is that worth while?

I am claiming no credit for the Division of State Fire Marshal. When we can point to one hundred and thirty human lives of inestimable value, to the home, to the community, and to humanity, and millions of dollars worth of property saved, there is credit enough for us all.

It would be impossible for me to give too much credit to the press. That great aggregation of independent enterprises known as the press of Ohio creating and directing public opinion, the greatest force in civilization, has done all in its power to advance the cause of fire prevention and stands ready to do so in the future. I urge you fire chiefs to use this force to the utmost.

Civic Organizations Deserve Credit

Too much credit cannot be given to many of the civic organizations that have become interested in this movement. In many localities the Chamber of Commerce, Rotary, Kiwanis, Lions, Exchange and other organizations of that kind have taken up the cause of fire prevention, and when that bunch starts, there is nothing that can stop them. They have secured the passage of fire prevention ordinances by their city councils; increased man power for the department, additional apparatus where needed, and have rendered wonderful assistance in our campaign of education, but probably not more than ten or twenty per cent of these organizations have become interested.

One of the greatest forces in the state has not yet been interested in a satisfactory manner. I refer to the women, and particularly the women's clubs. I refer particularly to the women's clubs because they are organized. We can reach them more readily and they can work more effectively. The women's greatest interest is naturally in the home, and it is there that we are experiencing our most serious losses, and particularly losses of life. I predict that within the next two years that with your cooperation and assistance, we will be able to interest the women of Ohio in this movement, and when that has been accomplished, we will have the most active, efficient, and persevering organization for fire prevention that has ever been formed in any state in the Union.

Scouts Are Doing Good Work

The girl and boy scouts are doing splendid work, and frequently, you fire chiefs are not familiar with what they are accomplishing. Fire prevention is part of their regular training. You chiefs are the natural heroes of these children. Do you realize how far that might go, now and and in the future, if you would occasionally give them a word of advice or encouragement? I suggest that when you return to your homes that you get in touch with the scout masters and find out what you can do for them and what they can do for you.

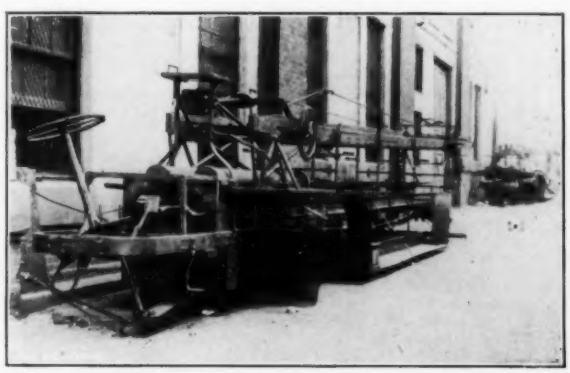
We have behind us a wonderful record of achievement, but it should serve only as a source of inspiration for more determined and better directed efforts in the future.

Drexel Hill, Pa., May Erect New House—A drive is planned in Drexel Hill, Pa., to raise $60,000 to finance the construction of a new fire station. The fire department has apparatus valued at $30,000, and inadequate quarters to house it.

Spectators Showered at Fire Contests—An unscheduled event in the tournament held by the Nassau, L. I., County Volunteer Firemen's Association at Valley Stream, N. Y., was the drenching of several thousand spectators in the grand stand, when during a hose fight, a hose line broke away from the men holding it.

Los Angeles Instructs Public

Several firemen in Los Angeles, Cal., have been assigned the task of making house to house calls in order to instruct the people in the proper method of turning in a fire alarm. The men are equipped with dummy fire alarm boxes.



New York City's Home for the Aged

One sometimes wonders what happens to the old fire apparatus that has become obsolete or beyond repair. Up on 56th street, New York city, near the water front, can be found one or more old fire engines that have made their last run long ago. They are left alongside of the repair shop for subsequent removal to the junk heap.

Prize Awarded for Best Birmingham Station—The chamber of commerce of Birmingham, Ala., has offered a prize for the best kept fire station in the city. Many of the stations have well kept lawns and shrubbery about the building. There was keen competition for the prize.

Mobile, Ala., Opens Two New Fire Stations—The Matt Sloan fire station and the Laz Schwarz fire station in Mobile, Ala., were formally dedicated. The Matt Sloan fire station is named in honor of the late fire chief and the Laz Schwarz station is named for the late mayor of the city.

POLICE COOPERATION IN REGULATION OF TRAFFIC SUGGESTED BY KENLON

New York Chief, in Address Before Canadian Police Heads, Emphasizes Benefits of Such Cooperation—Traffic an Acute Problem

By WM. JEROME DALY

AT the recent convention of the National Police Chiefs Association held at Windsor, Canada, early in June, a plea was addressed to the police officials for closer cooperation between the fire and the police departments on the subject of traffic regulation, by Fire Chief John Kenlon of New York. Chief Kenlon read a paper on the subject. It was prepared in collaboration with Calvin Lauber of the National Board of Fire Underwriters.

The address recited the traffic problem in great detail and it contained several high lights on the present-day systems of regulation. It covered all phases of the subject, especially the parking problem in congested areas and it went into the subject of traffic lights and their colors, automatic switching, manual controls and fixed posts or booths containing policemen.

In conclusion, Chief Kenlon declared:

"It is recognized of course that the traffic conditions of no two cities are exactly alike and that it would be absurd to expect a kind of laboratory-devised control system to fit without change in any American metropolis.

"Nevertheless the problem of traffic does possess some basic laws which are universal in their application, and a city like New York probably contains within itself some measure of the problems that face all communities. In other words, in some sections of New York conditions are probably similar to those in Miami, while another section may present conditions resembling those of Minneapolis. Hence it is probable that in solving the problem of New York the problem of Miami, of Minneapolis and other cities will be solved—at least indirectly and by example."

In opening his remarks, Chief Kenlon dwelt at length on what is likely to be the subject of discussion at the coming annual convention of the International Fire Chiefs Association in Portland, Ore., this summer. Abbreviated extracts from parts of his address follow:

"The traffic problem with its relation to the Fire Department is already a very acute one and requires immediate measures of relief. In looking ahead, one can see no remedy for this problem through a lessening of traffic demand, and it is fair to estimate that ten more years may readily show a doubling of the community demand for street space. A failure to meet these existing and growing traffic difficulties squarely and effectively brings all manner of problems in its wake. If the delayed alarm is bad, then the delayed response of apparatus is worse. Lives and property are at stake, at least potentially every time the going sounds in a fire house. Hence, all apparatus must meet certain speed requirements before its acceptance. Yet under present conditions, speed is impossible. There is traffic, moving and parked, to be encountered en route.

"There is more parked traffic to hamper the firemen after they arrive at the scene of a fire. And, finally, there is frequently a veritable concourse of vehicles, bearing the idly curious, choking the neighboring streets and blocking the way of reinforcements. Not merely possibilities these; they are actualities which already have figured in many hundreds of fires in metropolitan districts and will continue to figure in thousands more until a solution to this great problem is reached.

"A report recently published by the New York State Bureau of Municipal Information on the subject of 'City Regulations to eliminate fire hazards resulting from the parking of automobiles in streets and alleys' states: 'Our survey shows that the parking of automobiles in streets and alleys, especially in congested districts, results in accidents to and impedes the progress of fire apparatus enroute to fires, delays the placing of fire apparatus and the stretching of hose and hampers the work of firemen at fires, and lessens the efficiency of fire escapes. To solve the several serious problems with which city fire departments are now confronted as a result of parking automobiles in streets and alleys, congestion of traffic must be eliminated and automobiles either must keep away from buildings or so parked as not to interfere with the operation of apparatus and the work of firemen in the event of a fire, especially in the business or high value districts. The practice of chasing or racing with fire apparatus must be stopped and vehicles must be kept away from burning buildings. Seventy cities report that parked cars have seriously interfered with the laying of hose, the placing and raising of ladders.'

Chief Kenlon continued:

"Up to the present time, this phase of the problem has received all too little consideration in the many studies which have been made covering the general subject of traffic control. Although most cities have laws or ordinances giving the fire department right of way and prohibiting parking near hydrants, most cities had these requirements before the days of the automobile.

"The major difficulties encountered by the Fire Department because of traffic conditions may be summarized as follows:

"1. The need for regulating traffic so that vehicles will not form an obstruction to the fire apparatus either going to or working at a fire.

"2. Prompt notification to the public that apparatus is approaching."

Battalion Chief Given Watch

Battalion Chief Frank Murphy, of the Eleventh Battalion, New York Fire Department, was presented with a beautiful gold watch by the officers and men of his battalion in honor of his twenty years' service in the New York city department.

Battalion Chief Frank Murphy

The presentation was made by Dr. Harry Archer, Honorary Medical Examiner, in the presence of many of the chief's friends.

This gift is a pleasant departure from the accepted custom of presenting twenty-year diamond studded gold badges. The watch incorporates the idea of the twenty-year badge.

On the reverse side of the watch, as illustrated in the photograph, is a badge design with a diamond studded figure twenty, in honor of twenty years of service. It is inscribed "Battalion Chief, Fire Dept., New York Active Service, 20 Years."

The watch is engraved, "Presented to Battalion Chief Frank Murphy by Officers and Members of the Eleventh Battalion in Commemoration of 20 Years of Active Service, May 15, 1927."

A number of the battalion chiefs who have been honored by the men in the battalion have been presented with a gold badge set with diamonds to form the figure twenty in honor of the term of service. This design combines the accustomed honor with the additional value of having a good time piece.

Diamond Studded Watch to Mark 20 Years' Service of Chief Murphy

Chief Shepard Honored

Chief W. C. Shepard of Pittsfield, Mass., has rounded out fifty years of service in the fire department and in honor of that event, the board of alderman passed the following resolution:

"In that half century he did not lose a day on account of illness although he was twice injured in the performance of duty. He never gave occasion for, nor received a reprimand. No demerit of any kind was ever written against his name. His service to the city has been signalized by efficiency, by zeal, by integrity, by entire devotion to duty. He has placed the welfare of the city ahead of all else in his public life, and deserves the commendation for good and faithful service."

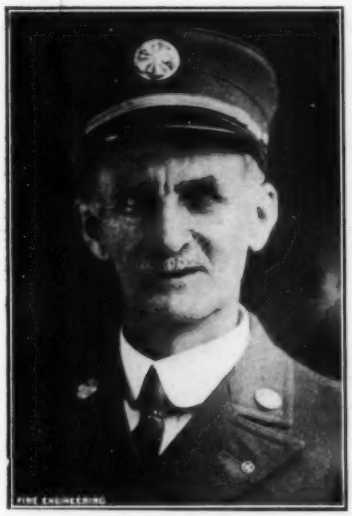
Chief Shepard was born in San Francisco in December, 1862, the son of a "forty-niner," who left Canterbury, Conn., and traveled to the coast around the horn to seek his fortune. Chief Shepard returned east and when fifteen started to learn the plumbing trade but found fire department work more to his liking.

Stoughton, Mass., Has New Fire Station—The public had an opportunity to inspect the new fire station of Stoughton, Mass.

Canton, N. Y., Receives Ladder Truck—A Buffalo ladder truck has been delivered to Canton, N. Y. It is equipped with a booster tank.

Behrens Heads South Carolina Firemen

Chief Louis Behrens of Charleston, South Carolina, has been re-elected president of the South Carolina Firemen's Association which held its annual convention in Darlington. With one exception, all of the officers of the past year have been re-elected — W. Sam Truett, chief of Darlington, was elected second vice-president.



Chief Louis Behrens

The members were luncheon guests of Hartville and taken on a sight-seeing trip through that city.

In his annual report to the association, President Behrens said, "It is only a question of time when the fire service in all of the leading towns will be a paid service and then our people will realize the mistake that they have made in not fostering the spirit of patriotism that makes firemen. The increased cost of service may result in less efficient work than that which they are now receiving. It is to educate our citizens to a more enlightened view of the situation that we should bend our energies and thereby give another proof of the good citizenship that prompts us in our profession to do good to others."

The new officers of the association are Louis Behrens, Charleston, president; A. McA. Marsh, first vice-president, Columbia; W. Sam Truett, Darlington, second vice-president; R. S. Hood, Sumter, secretary; T. O. Flowers, Rock Hill, secretary; R. T. Hall, Orangesburg, statistician; George F. von Koinitz, Charleston, attorney; Rev. A. P. Peyton, Rock Hill, chaplain.

The firemen were entertained at a showing of the "Fire Brigade." Next year the association will meet in Rock Hill.

Portland to Show Off New Suits

In connection with the exhibition conducted by the Portland, Ore., fire department to show the department off to the public, demonstrations were arranged to show the value of the asbestos suit in fire-fighting.

A puddle of burning gasoline was placed in the center of the stadium and a fireman with his heat-proof suit, walked through unconcerned. Two of the ladder trucks with ladders together manouvered about, and demonstrations arranged in first aid work.

An illuminated fireboat display was arranged for Saturday evening of the exhibition week.

Maryland Hose Standard Bill Vetoed

Although House Bill No. 274 in reference to the standardization of hose threads in Maryland to conform with the specifications of the National standard thread had passed the house, the measure was vetoed by the governor. In a previous issue, FIRE ENGINEERING reported the passing of this bill but since then the legislation was disapproved by the governor.

The bill which was vetoed reads as follows:

"It shall be unlawful for any person, firm, corporation or association to sell or offer for sale in the State of Maryland any fire hose, hydrants, fire engine or other equipment for fire protection purposes unless the same shall be fitted and equipped with the Standard Thread for fire hose couplings and hydrant fittings designated as the National Standard, which is seven and one-half threads per inch, as the same has been adopted by the National Board of Fire Underwriters and is hereby designated as the standard for such equipment in the State of Maryland."

College Park, Ind., to Form Department—A volunteer fire department will be organized in College Park, Ind. Apparatus has already been purchased and a house will be erected to house the equipment.

SOME PROBLEMS ARISING IN FIGHTING OUTSIDE FIRES

No Legal Obligation on City to Assist in Fighting Outside Fires—Law in Minnesota—Suggested Legislation

PRACTICALLY every municipality in the state which has an organized fire department, and particularly those which have fire apparatus, have been called upon at one time or another to assist in extinguishing fires outside the corporate limits. The emergency which exists when calls of this character are made usually does not give time for any deliberation on the part of the chief of the fire department or the other municipal officials as to the legality of serving such outside territory. Several problems, however, arise when the fire department is sent or goes outside the limits. The first of these is the problem as to who, if anyone, is responsible under the workmen's compensation law, for injuries sustained by fireman fighting such fires outside the limits. Second, does the city have any legal right to collect from the person served, or from the township, municipality, state, or county, or any other territorial unit in which the fire is located?

It is a well settled principle that the city is under no legal liability to send its fire department outside the limits. In a case which was decided in the Mennesota Supreme Court in 1919, the Duluth fire department which had been called upon to assist in extinguishing a fire outside the limits was involved. In driving to this fire the assistant chief's car ran over and killed a child. The suit was brought to secure damages from the city for the accident. The Supreme Court held that as fire fighting was a governmental function no liability existed. Commissioner Taylor in the course of his opinion in this case went into the problem of extra-territorial services, and made the following statements:

> "It is probably true that no legal duty is imposed upon a city fire department to assist in extinguishing fires outside the city, but it is a matter of common knowledge that such departments almost invariably respond when called upon in such cases. Actuated by motives of humanity rather than by the mandate of strict legal duty, they seldom refuse to give their services to their neighbors in case of need. While the law may not impose a legal duty upon them to assist in extinguishing fires outside the city, it certainly does not forbid them from doing so." (Hubert v. Granzow, 131 Minn. 361.)

A brief survey of the existing law in this state seems to show that cities and villages are not given the power by general law (except in the case of Minneapolis, see Chapter 227, Laws of 1919) to render fire service outside the municipality. We all know, however, that this is being done. As no obligation exists on the part of the city to send its department outside the limits, and as the city is not definitely empowered or required to do so in the statutes, any service of this nature would be voluntary on the part of the firemen. The city probably could not legally collect for the service, certainly the firemen could not collect, as no contract would be implied. The person or municipality served would be under no legal obligation to pay for the service. And as the city could not legally pay the firemen for such service outside its limits no wage liability would be established.

Injuries received by firemen while fighting such fires, the service being voluntary, would probably not be compensable under the workmen's compensation law. Commissioner F. A. Duxbury of the Minnesota Industrial Commission states in this connection: "If they (the firemen) were injured under such circumstances no compensation liability would arise against anybody, because no regulation of employment exists and no wage liability arises upon which compensation could be based.

There is not, to our knowledge, any restriction in the constitution of the state that would prevent the legislature from remedying by legislation this unsatisfactory situation. It is our opinion, therefore, that justice to the municipality and to the firemen requires some legislation which will accomplish the following results:

1. Empower municipalities to give fire service outside their limits.
2. Permit municipalities to collect from the person or municipality served or be otherwise reimbursed.
3. Allow the municipality to pay its firemen for such service.
4. Establish the liability of the municipality under the workmen's compensation law.

Such a result might be accomplished by one act or a series of acts which would permit the municipalities to provide by ordinance within certain limits a schedule of rates at which they would assist in extinguishing fires, specifying the apparatus which would be used, and providing that such service be not rendered unless sufficient fire protection could be assured for the municipality itself during the absence of the department. A limited liability might be placed upon the township, county, or other

municipality for the fire service received, whether directly requested by the officers of these units or not. Several important problems arise in attempting to draft legislation of this kind, one of the most important being the possible justice of requiring that the individual receiving the fire service should pay for the service. Perhaps a small fire tax might be levied in the township against all property, and paid annually to the municipality serving the district. Undoubtedly something constructive should be prepared and proposed for consideration of the persons and the municipalities affected in such time that it can be carefully gone over before the next session of the legislature.—*Minnesota Municipalities.*

Q. & A. N. Y. Promotional Questions

(*Continued from page 696*)

through so that he may be rescued. Sewer foreman can give . . as to probable position of body. It is best to have men equipped with helmets work from a lower point up toward the manhole through which the man fell rather than from the manhole on down through the system. Ambulance should also be called to be on hand when the rescue is made.

(B) Rescue company, truck company and ambulance will be needed. It will probably be necessary to open up the top of the elevator car to get the people out and make room for operations in rescuing the boy. Rescue car carries oxy-acetylene cutting apparatus and other appliances necessary in work of this sort. Ambulance will be needed for the treatment of the boy and possibly for treatment of people in car, particularly females, who may be affected by shock. No attempt should be made to move the car until the boy is freed, if such is at all possible. After the people in the car have been taken out, jacks or other necessary apparatus may be employed to create sufficient clearance between car and wall of shaft to relieve the boy.

(C) Call rescue company. Notify station master to have power shut off from section where accident has occurred. Call ambulance. Have station agent notify transit company of the accident for they have equipment which will be of assistance in freeing the body. Notify police department to send reserves to assist in clearing the station and emptying the train so as to make the work of the rescue company and the railroad emergency crew unhampered.

Answer 5: (A) In opening up gravel roofs, which are usually made up of heavy tar paper covered with a coating of tar and gravel, the gravel is first scraped off with a shovel or spade and the tar paper ripped up and rolled back. Then after determining the position of the roof rafters or beams, the roof boards are cut alongside of beams. The boards are then pried off or forced through, depending upon whether a section is cut up between two beams or whether the section cut up crosses over a beam. When completed this operation will afford ventilation for the cock loft. If there is no opening in the ceiling connecting the cock loft and the hall of the building it will be necessary to force down a section of the ceiling in order to ventilate this floor.

(B) The usual method of ventilating in such a case is to start at the top and work down along the fire escapes.

If fire is burning and it is necessary to open up the roof, it is best to run a ladder to the roof rather than hoist a short ladder up the fire escape to be operated from the fire escape to the roof. The first method provides for the escape of men, which might be dangerous proceedure in the event that the fire escapes alone were depended upon.

Assign men to open up the roof as usual. Then the men operating on the fire escape may start at the top floor and work downward if this procedure is safe in the particular problem in mind. Lower windows from the top and raise them from the bottom half way so that ventilation will be provided on each floor. Open the windows top and bottom on the way down along the fire escape. A six foot hook can be used for opening windows on either side of fire escape, if they are not fastened in the inside.

Owners Liable for Damages to Firemen—Two firemen who fell into a pit while operating at a grass fire and were injured settled their accident claim out of court. The right of the fireman to collect for such injuries was thereby established.

New Salaries for Burbank, Cal.—The city manager of Burbank, Cal., has announced a new schedule of salaries for the fire department: chief, $225 a month; captain, $175; lieutenant, $170; engineer, first year, $145, second year, $160, third year, $170; hose man, first six months, $135, second six months, $145, third six months, $155 up to third year and then $165; alarm and desk man, $150. This schedule of pay took effect from July 1.

Funderburk, Chief at Springfield

William H. Funderburk, formerly assistant chief of Springfield, Ill., was recently promoted to the head of the department and succeeds Matthew Cullen, who retired.

Chief Funderburk was born in Sangamon County near Springfield on January 27, 1875. On September 26, 1902, he was appointed truckman of Ladder Company No. 1 and he served there for ten years.

In 1912 he was made stoker of the Abe Lincoln steamer and he served in this capacity until July, 1915. At that time he had the honor of being appointed the first engineer in charge of the first gas pump.

Chief Funderburk served at this post until December 1, 1920, when he was appointed assistant chief under the late Roy R. Reece, then commissioner of public health and safety.

His object, now that he is chief, is to increase the efficiency of the department and to attempt to reduce the annual fire losses of the city.

Chief Wm. H. Funderburk

Chicago Loses Pension Raise

The state senate refused to sanction the proposed increase in the firemen's pension fund for Chicago, Ill. The measure lacked five votes for approval by the senate.

The bill had been attacked by various civic organizations in Chicago as being both unsound and bad. The measure had passed the house before coming to the senate.

Montana Firemen Meet in Helena

A convention of the Montana State Firemen's Association was held in Helena for three days commencing June 16. V. H. Steele, president of the organization, presided at the meetings.

President Steele said, "The association will never take the proper place in the civic affairs of the state until its membership is increased to include every department in Montana.

"Upon investigation I find that there are some ninety-two departments participating in the funds alloted for relief and pensions. If this association is to carry the burden and assume responsibility of shaping the state-wide affairs of the firemen, then it is by right, entitled to the proper recognition among its own members for such services, and I can find no excuse for any department remaining outside of the association."

Legislative matters were reviewed and the achievements of the association were discussed in detail.

Dr. James F. McNamee, minister of the First Baptist Church of Helena, gave the invocation, and following this there was the appointment of committees.

W. G. Alexander of Boseman and George Lapp of Butte, two veterans of the fire service, were loudly acclaimed by the association.

In the afternoon of the opening day of the convention there was an auto ride to the Gate of the Mountains and a boat ride. A banquet was arranged at the Placer Hotel.

G. E. Thomas of the National Board of Fire Underwriters spoke on "Fire Department Hydraulics," and George G. Watts spoke on "Workmen's Compensation, as Compared with the Firemen's Pension Law." Entertainment was provided for the afternoon and evening.

The state president is optimistic and feels that there are bright prospects for the association.

Bangor, Me., Completely Motorized—The fire department of Bangor, Me., is now completely motorized. A ladder truck was the last of the horse drawn apparatus and has been replaced by a motorized unit complete with smoke masks and life saving equipment.

Morgantown, W. Va., Presented with Clock—In recognition of the assistance rendered by Morgantown, W. Va., to the city of Masontown, the city presented Morgantown with a mahogany grand father's clock. In February, 1927, the city had a dangerous fire which threatened the entire city.

FIRE DEPARTMENT ACTIVITIES

Greensburg, Ia., Purchases Apparatus—A Seagrave ladder truck and a booster pump was purchased by Greensburg, Ia.

Siren Erected in Flora, Ill.—A siren has been installed in Flora, Ill.

Bogota, N. J., Has New Pumper—A Maxim pumper has been placed in service in Bogota, N. J.

New Station at Everett, Wash., Water Front—A new fire station has been placed in service at Everett, Wash., to protect the water front property.

Elizabeth, N. J., Apparatus Carry Whistles—All the fire apparatus in Elizabeth, N. J., has been equipped with Buck-Eye exhaust whistles.

Merseles, President of Johns-Mansville Corporation—Theodore F. Merseles has been elected president of the Johns-Manville Corporation, manufacturers of asbestos specialties.

Exeter, N. H., Completes Fire Alarm System—The new fire alarm system of Exeter, N. H., has been completely installed at a cost of $5,000.

Hawthorne, Cal., to Have Call Department—The fire department in Hawthorne, Cal., will be changed from a volunteer organization to one composed of call-men.

Haverhill to Let Contract Soon—Haverhill, Mass., will soon let the contract for the construction of the new central fire station.

Siren Installed in Orange, Cal.—A siren has been installed in Orange, Cal., and replaces the steam operated whistle which has been costing the city $4 a day for steam.

Many Attend Firemen's School at Urbana—More than five hundred firemen from Illinois attended the third annual short course for firemen held at the University of Illinois at Urbana.

Falmouth, Mass., Has New Pumper—A 1,000-gallon Ahrens-Fox pumper has been delivered to Chief Ray D. Wells of Falmouth, Mass., for the protection of the summer residents of Woods Hole.

Chancey Heads Florida Firemen—J. D. Chancey, captain of Ladder Company No. 2, Jacksonville, Fla., was elected president of the Florida State Firemen's Association at the annual meeting held in Holywood. He was formerly vice-president.

New Jersey Chiefs to Meet in Red Bank—The next meeting of the New Jersey Fire Chief's Association will be held in Red Bank, N. J., on July 21 in the Borough Hall. It is expected that Chief John Kenlon and Dr. Harry Archer of New York city will attend.

Dallas May Erect Drill Tower—A request has been made to appropriate $7,000 with which to construct a concrete and steel drill tower in Dallas, Tex. Should the measure pass, the tower will be erected in Fair Park so that the residents will be able to see the firemen going through their evolutions.

President of N. Y. Firemen Approved—The members of Uniformed Firemen's Association of New York city are solidly behind Antion Holterback who is their president. The association without a dissenting vote, approved his stand on the eight-hour day plan.

Chief McKinney of Norman, Okla., Resigns—Chief George McKinney has resigned from the Norman, Okla., department after serving for twenty years. Two men have registered for the fire school in Oklahoma City and the one having the highest marks will be made chief to succeed Mr. McKinney.

New Company Placed in Anderson, Ind.—A company has been installed in the attractive bungalow fire station in Anderson, Ind., that was completed some time ago. The building was completed but the city found that it did not have funds with which to finance the manning of a company. Recently Chief Alfrod received instructions to place the station in service.

Statesville, N. C., Firemen Demand New Chief—Members of the Statesville, N. C., fire department appeared before the board of aldermen and demanded the resignation of Chief W. L. Neely or that the city accept the resignation of the members of the department. As the easiest way out of the difficulty, E. R. Rufty, was appointed chief.

Talbot County Forms Fire Association—The Talbot County Firemen's Association has been organized with the following towns in Maryland as members: Easton, Oxford, St. Michaels, Trappe, Cordova and Tilghman. Oscar Sinclair of Tilghman was elected president and L. S. Gardner of Cordova, secretary.

Niagara Fire Association Organized—Ransomville, Newfane and Wilson, N. Y., organized the Niagara Associated Volunteer Fire Association, the object of which is to render advice and assistance to the various fire companies. The first annual meeting was held in Newfane and Chief Baker of that place was elected president with Chief Doge of Ransonville, secretary.

Montana Firemen Consider Hose Couplings—The standardization of fire hose coupling threads was one of the chief items considered at the annual convention of the Montana State Firemen's Association in Helena, Mont. It was pointed out that only four fire departments have hose threads that conform to the national standard.

Large Firemen's Parade in Sunbury, Pa.—More than three thousand firemen were in the line of march in the parade that was one of the features of the convention of the Six-County Volunteer Firemen's Association that was held in Sunbury, Pa., on June 23. There were many prizes for the best and largest units in the parade. The association will meet next year in Danmore.

Suffern, N. Y., Assistant Chief Injured—Fred P. Ernst, second assistant chief of Suffern, N. Y., has a foot badly crushed for his attempt to board the fire apparatus when it was leaving the fire station on the way to answer an outside call. Chief Ernst has been laid up for several weeks and it is probable, according to the doctors, that the foot will not be well for a few months at least.

Chief Watters of Oak Park, Ill., Banqueted—Chief William C. Watters of Oak Park, Ill., was tendered a surprise banquet by members of the department in the central fire station. Chief Seyferlich of Chicago and Chief McAuliffe of the Chicago insurance patrol were guests. Chief Seyferlich, on behalf of the members, presented Chief Watters with a white rubber coat and helmet.

Schenectady, N. Y., Considering Bond Issue—Schenectady, N. Y., is considering the floating of a bond issue to finance the purchase of a city service truck to be attached to a two wheel tractor now owned by the city, and for the erection of a new fire headquarters estimated to cost $180,000. They are also considering the construction of a new fire alarm headquarters which together with equipment is estimated to cost $100,000. The city is expecting the delivery of a 1,000-gallon pumper.

Watching the Test of Foam Streams at the Convention of the New England Association of Fire Chiefs

Upper—The pit of burning gasoline and oils prior to the use of Foamite, and lower, fire almost extinguished after the foam streams were applied.

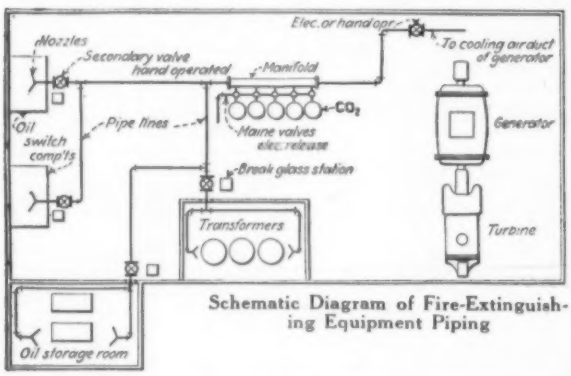
INDUSTRIAL PLANT PROTECTION

CARBON DIOXIDE SYSTEMS PROTECT ELECTRICAL UNITS

This Type of Extinguisher Has Been Receiving Considerable Attention for Protection of Power and Electrical Plants*

As the units in modern power plants become larger, the necessity for protecting them from damage commands increasing attention of the engineer. Elaborate systems of relays and switches serve to preserve the continuity of service on the lines from a power plant. Electrical protection on all kinds of equipment is provided. But that most ancient bugaboo of the human race, fire, stands ready to do its disastrous work at many places in a power plant. It must be checked at once, or its spread will quickly cause serious trouble.

One might ask what there is in a modern fireproof power plant which can burn, outside of the coal or oil under the boilers. The answer is, the insulation on all conductors, or at least that part which contains carbon and hydrogen compounds, and the oil



Schematic Diagram of Fire-Extinguishing Equipment Piping

in the large transformers and switches. These combustibles are in proximity with the current-carrying copper, which is the source of heat sufficient to cause fires at times of short-circuits or continued overloads.

Methods of Extinguishing Fires

The methods of extinguishing a fire in electrical equipment vary considerably. Water is the best-known medium for quickly putting out an ordinary fire and reducing the temperature of the combustibles. But water as a remedy for fire in electrical machines is almost as bad as the disease, as the equipment must be thoroughly dried out before it is again put in service. Carbon-tetrachloride has been suggested to replace water, and while it evaporates quickly and leaves the machine dry, it is an excellent solvent and the insulating compounds may be hopelessly damaged in this way. The introduction of an inert gas to smother the flame is probably the ideal method. Steam may be regarded as such a medium, but it is potentially liquid water and has all the objections of water. Perhaps the cheapest, most harmless, and still effective gas that may be used is carbon-dioxide.

United States laws provide for steam piping for smothering fires in cargo holds of vessels. To avoid the consequent damage to cargo when steam is thus used, many steamships have installed a carbon-dioxide fire-extinguishing system for primary use with the steam still available in an emergency and to comply with the law. The great volume of a ship's hold requires a large number of tanks of carbon dioxide, and this has partly retarded its general adoption. Since the volume of a compartment in a power plant may be made relatively small where fires are likely to occur, it becomes economically practicable to install carbon-dioxide tanks and piping to these small areas for the smothering of fire.

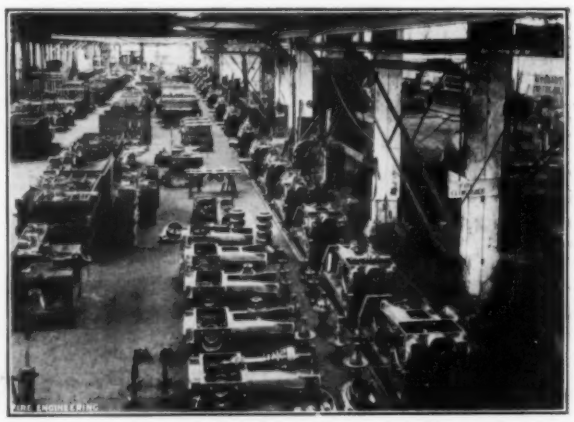
In principle the system consists of a battery of tanks of compressed carbon-dioxide, connected by pipes to compartments and housing of electrical equipment in which fire may occur. In use the main valves at the tanks are opened, releasing the inert gas to the pipe lines. The proper valve in the pipe lines is then opened to admit the carbon-dioxide to that compartment where it is needed.

Under normal conditions there is no pressure in the pipe lines. The apparatus under pressure consists only of the tanks and their valves. When carbon dioxide as a gas under high pressure is slowly released through a small opening, as when an ordinary valve is partly opened, the gas cools upon expanding to atmospheric pressure. The cooling is sufficient to reduce part of the released gas to the solid form. If the gas is released rapidly from a tank, this freezing does not occur.

The piping to the desired points in the power plant is usually about one-and-one-half inch double-extra-heavy iron. In all cases the secondary valve is placed outside of the room containing the fire hazard in order that a man, upon discovering fire in the room where he may be, first gets out to a safe point himself and then turns on the carbon dioxide. Near each secondary valve is a break-glass station which electrically releases the main valves at the tanks when the glass is broken, in a manner similar to a fire-alarm box.

The end of the pipe is provided with two nozzles, usually monel metal, which are simply two pipe caps with a hole about three-eighths inch diameter in the top. These nozzles are pointed in a horizontal direction and at various heights above the floor. Carbon dioxide is heavier than air, and the nozzles are preferably located a foot or two above the floor in order that the gas may flood the room, forcing the air out of an opening near the top. This opening is provided with an electric fan which is turned on after the fire is out and serves to remove smoke and the carbon dioxide from the compartment so that it may be entered for inspection. These compartments are not necessarily airtight. An ordinary door closes tightly enough to prevent excessive leakage of carbon dioxide. It is not necessary that the atmosphere consist of 100 per cent carbon dioxide to smother a fire. Experiments show that a proportion of anly 25 per cent carbon dioxide in air is sufficient to put out a fire at once.

* Extracts from *Power*.



Fire Protection of One Plant in California

At the factory of the Caterpillar Tractor Company at San Leandro, Cal., a 10-inch 327 feet supplies an eight-stage turbine and a 10,000-gallon tank supplies water at a head of sixty feet. In case of an emergency, there is a four-inch meter which is connected with the city water main. Plant protection is through an overhead sprinkler system which obtains its supply from two fifty thousand gallon tanks, and as a secondary supply there is an eight-inch direct connection to the city mains. The installation is tested each month, and in addition there is direct connection with the A. D. T. watchman service, and there are numerous forty-gallon and 2½-gallon fire extinguishers placed at strategic points.

C. W. GEIGER.

Cotter, 38 Years in Service in Waterville, N. Y.—William H. Cotter, ex-chief of Waterville, N. Y., has rounded out thirty-eight years of service as a fireman. He joined the department on June 7, 1889, was elected chief in 1905 and again in 1918. He still responds to fire alarms.

Chief Short of Oakland Praises C-A-M Sirens

SAMUEL H. SHORT
CHIEF
FIRE DEPARTMENT

DEPARTMENT OF
PUBLIC HEALTH AND SAFETY
FRANK COLBOURN
COMMISSIONER

CITY OF OAKLAND
CALIFORNIA

C-A-M MANUFACTURING COMPANY,
802 Humboldt Bank Building,
San Francisco, California.

June 9, 1927

Gentlemen:

With further reference to our conversation as to how I, personally, and the members of the Oakland Fire Department liked the C-A-M Siren, wish to state that the C-A-M Siren is more powerful and has been the talk of the Department since being installed, due to the fact that it gives greater volume of sound and clears traffic more effectively than any other type of siren used by this Department.

Yours very truly,

Chief of Department.

P. S. C-A-M Sirens are now included in specifications for new apparatus

Greatest of All Apparatus Sirens

THIS indorsement by Chief Short is typical of what Fire Chiefs everywhere think of C. A. M. sirens. Fire Departments from coast to coast are rapidly equipping all their apparatus with C. A. M. sirens.

Test after test in actual service has proven the superiority of the C. A. M. for fire department use. They are *quality* sirens—sturdily made of the finest material obtainable. Every siren *unconditionally guaranteed.*

Once you hear the sharp command—the distinctive, penetrating, far-reaching sound of the C. A. M. siren, you'll understand why it is being adopted by Fire Chiefs who have tried them all.

We'll Gladly Send You One on Trial

(Distributed by leading fire apparatus manufacturers and fire department supply dealers).

C. A. M. Manufacturing Company
802 Humboldt Bank Building, San Francisco, California

MACK FIRE APPARATUS

• • •

A few outstanding features

No. 1—Rapid acceleration from fire house, and where traffic makes a slow down necessary. Four speeds forward, plus unusual engine power, and a transmission built to stand the tremendous acceleration strains.

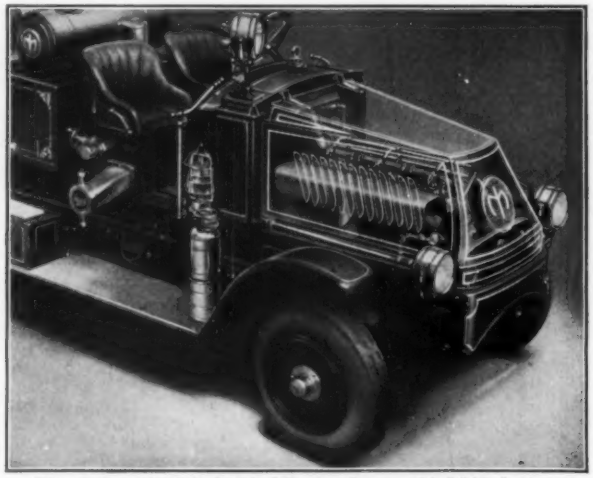
No. 2—Four wheel brakes, actuated through a vacuum booster attachment, enable the driver to keep the vehicle under control at all speeds.

No. 3—Unusually low gravity center and wide tread insure great stability—and the Bulldog hood gives that clear road vision so uncommon in large units.

No. 4—Chassis frames, made of special formula steel that produces the toughest possible metal, protects the lives of the firemen in case of collision, and materially cuts down the chances of the vehicle being put out of commission.

No. 5—A steering wheel built of fabricated rubber cannot splinter, and a 16 to 1 gear ratio steers easily.

The above advantages apply to all Mack Models, chain or dual reduction drive, both four and six cylinder apparatus, including motor-driven pumpers of 350 to 1000 gallons capacity of either the rotary or centrifugal types. All pumpers



This, the latest Six Cylinder Mack Pumper, known as Model AP, having a capacity of 1000 gallons, is the direct reflection of a 26-year background of practical engineering.

can be equipped with either soda and acid chemical tanks or with auxiliary water tanks used as pump boosters.

Send for special literature and catalogs of any or all Mack Fire Fighting Apparatus.

MACK TRUCKS, Inc.
INTERNATIONAL MOTOR COMPANY
25 Broadway New York City

One hundred and four direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION", "MACK MOTOR TRUCK COMPANY", or "MACK TRUCKS OF CANADA, LTD."

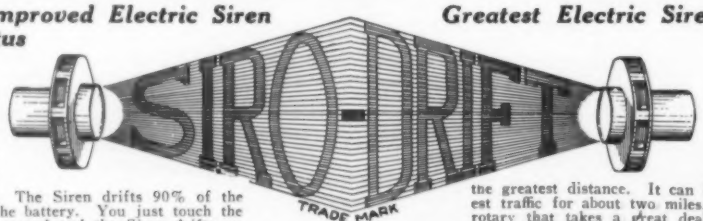
The New and Improved Electric Siren for Fire Apparatus

Greatest Electric Siren Ever Built for Fire Apparatus

SIRO-DRIFT

A Siren that will operate on one-tenth of the battery juice of any other electric Siren of its size. The Siren drifts 90% of the time without the aid of the battery. You just touch the Siren button for one-half second and the Siren drifts on for two or three minutes.

One-half second of current, applied means ten seconds running without any current, with plenty of noise—or two to three minutes at a slower rate of speed.



SIRO-DRIFT

Is 8 inches in diameter and gives the rising and lowering tones that carry the greatest distance. It can be heard through the thickest traffic for about two miles. Has a specially designed rotary that takes a great deal less power to drive than any other electric Siren.

We gladly ship a SIRO-DRIFT SIREN to any city on approval, transportation prepaid. Comes in three brackets—cross bar, on frame in front of radiator and under-the-hood.

Send at once for complete information

B & M Siren Manufacturing Co. LESTER H. MILES, *Owner* 929-931 South Main Street, Los Angeles, Calif.

City Service Hook and Ladder Apparatus

Combination Ladder Co., Inc., 381 Fountain St., Providence, R. I.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

HANDLE FIRE HOSE PROPERLY TO INCREASE ITS USEFUL LIFE

Fire Hose Easily Shows the Amount of Abuse Given to It—Should be Kept Clean and Dry and Should Not Be Crushed

UNSATISFACTORY service from fire hose can often be traced to misuse on the part of the members of the company, either mechanical injury while in service, injury from heat or injury from chemicals.

Mechanical injury may be caused by cuts, vibrations or sharp cornices. Frequently hose is laid over sharp stones and the constant rubbing of the hose jacket while the pumper is in operation, will cause the stone or sharp obstruction to wear a hole through the hose. The vibration in fire hose is greatest near the engine. At sections of hose farther away from the engine, the vibration is somewhat deadened by the elasticity of the hose which acts through the entire length to smooth out the impulses.

The commonest injury to hose is that due to trucks or heavy cars running over it. When the hose is charged and under good pressure, there is not apt to be any great damage done, but when the hose lies flat on the ground, or is under a small pressure, the damage may be servere.

While after such an incident, the hose may be perfect, an inspection of the interior, if it were possible would reveal that the lining had separated from the jacket at the point injured.

Under no condition should apparatus cross flattened hose without bridges. The bridges are easily made and consist of triangular blocks of wood, the height of which is slightly higher than the diameter of the hose and the length of which is such as to give an easy ascent and descent to trucks passing over the bridge. One of the blocks is placed on each side of the hose so that the hose is not touched by the wheels of the truck going over. Some apparatus carry two sets of such bridges to be used when it is necessary to keep the main highway open while working at a fire.

Rubber is not a stable article and it is easily injured by heat no matter how much care is given to it. Proper care of the hose merely postpones the time when the lining of the hose will "go bad."

The lining is made of a pure form of plastic rubber which has a consistency similar to putty. This passes through various stages of manufacture to give it a greater hardness, and in order to do this, it passes through a heating process.

Therefore, the more the hose is exposed to the heat while in service, the sooner will the time arrive when the hose will be too hard to be of any value. It will crack when used. This damage may result from having the hose over hot cinders and embers.

Hot oils and greases will produce the same effect on the lining of the hose as does heat from any other source. These materials, however, have an additional deleterious effect. Hot water acts likewise and care should be exercised that lines of hose are not permitted to pass through vats or containers filled with hot liquids.

It is perhaps the most difficult of all, to guard against the injury of fire hose by chemicals. Frequently the injury from chemicals is not evident until some time after the injury has occurred.

Gasoline coming in contact with the hose will dissolve the rubber cement that is used in hose manufacture. The least bit of gasoline will work its way through and dissolve the cement which holds the lining to the jacket, and the lining will soon become free. The result is that when in use, the hose will cram, and the flow of water will be obstructed. Not only does gasoline act on the cement but it also affects the rubber and causes rapid deterioration.

Oils and and greases have various effects on fire hose. Thin oils and greases which go through the jacket readily are far more serious than the thicker substances which are inclined to remain on the surface. Almost any of the oils soaking through and coming in contact with the rubber lining tend to destroy it. Once they get through the jacket as far as the lining, they remain there and commence their devastating work.

A very weak solution of sulphuric acid as well as other acids will do irreparable damage to a cotton jacket of fire hose. Those who have had any experience in working around storage batteries and have found how quickly the solution from the batteries will make a hole through a cotton garment, will have some conception of how the acid will react on the hose jacket.

Acid damage is unmistakable. Some acids will cause a brown spot on the jacket while others will cause the cotton material to turn to a powder form. To test for acid burns, rub some of the powdered material from the hose, and if it has a sour taste, the damage is due to acid. This test should not be made until the hose has stood for some time and the acid has had a chance to use its energy in eating away the jacket.

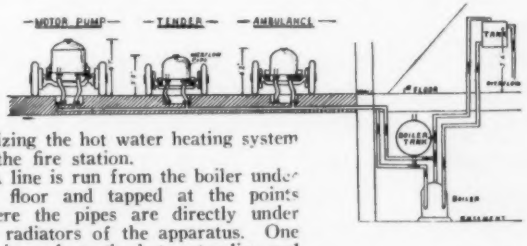
There are many ways in which acid comes in contact with fire hose, but perhaps the commonest way is from drippings from chemical tanks and fire extinguishers. In order for fire extinguishers to operate, it is necessary to have some acid such as sulphuric acid on bicarbonate of soda to furnish gas to force the water from the copper container. The first spurts of liquid from the extinguishers will have an excessive amount of acid, and should any of the acid come on the hose, the deterioration action will start. And then again, some of the firemen may be careless while charging the chemical tanks with acid and permit some drops of acid to fall on the cotton jacket hose.

Many of the claims sent into the hose manufacturers for adjustment because of defective hose are really troubles that have resulted from acid coming in contact with the hose. Some times, as in the case of new hose, the hose may come in contact with the acid while in shipment, and it is therefore necessary to examine all new lengths of hose for acid burns.

It is not at all difficult to exercise a fair amount of care in handling hose. Hose that has been handled in the proper manner will last a good many years, and the expense of supplies for the fire department will be reduced materially.

Reducing "Get-Away" Time

Some places that are troubled by strong winds have a difficult task of making a quick get-away from the fire house, should an alarm come in, because the motor is cold. A correspondent to "Fire," the English fire journal, suggests a method of utilizing the hot water heating system in the fire station.



A line is run from the boiler under the floor and tapped at the points where the pipes are directly under the radiators of the apparatus. One tap is made to the hot water line and one to the return line for each piece of apparatus. By means of a pet cock and rubber tubing, the taps are temporarily connected to the radiator.

In this manner there is a constant flow of hot water through the radiator, the engine is kept at a warm temperature and the oil is of such viscosity as to insure an easy flow. Should an alarm come in, the hose is disconnected and four taps closed. One tap is closed at the radiator and one at the pipe line for both the hot water and the cold water return line. The writer claims that the time lost in disconnecting the tubes and closing the taps is more than compensated for by the quick response of the motor to the operation of the throttle.

Three Firemen Hurt in Cleveland, Ohio—Three firemen were injured in Cleveland, Ohio, when the ladder truck on which they were responding to a fire crashed into a trolley car.

McKinnie, Fire Marshal of Taft, Cal.—G. F. McKinnie, city electrician has been appointed fire marshal of Taft, Cal. He is considering the installation of a code siren for the city.

Richmond, Va., Receives New Pumper—A Seagrave pumper has been delivered to Richmond, Va., for use in the downtown section of the city. During the tests, the pumper delivered 1,600 gallons a minute.

Bookings of "The Fire Brigade"

Additional bookings of "The Fire Brigade," the motion picture sponsored by the International Association of Fire Chiefs, are being received daily. The following list contains the additional bookings that have been received since the publication of the lists in the previous issues of FIRE ENGINEERING.

Due to the large number of bookings that are being received for "The Fire Brigade," space does not permit a listing of all the theatres that have booked the motion picture. Instead a listing will be made of the first date at which "The Fire Brigade" is to be shown in a municipality.

City	Theatre	Date
Arkansas		
Jonesboro	New	August 18–19, changed from Aug. 17–18
Delaware		
Wilmington	Arcadia	August 29 (week)
Maine		
Cornish	Opera House	July 30
Kezar Falls	Stanley	July 29
Old Town	Strand	September 29
South Poland	Pavillion	July 15
W. Sullivan	Bijou	August 20
Maryland		
Elkton	New	September 14–15
Ridgley	Community	September 30–October 1
Massachusetts		
E. Pepperell	Opera House	August 17
Fitchburg	Grand	August 21–23 changed from August 22–23
Pittsfield	Union Square	August 1–3
Michigan		
Evart	Lyric	August 26–27
Mississipi		
Belzoni	Crescent	July 21–22
Missouri		
St. Charles	Strand	August 23–24
Nebraska		
Fullerton	Royal	September 21–22
Osceola	Auditorium	December 16–17
New Hampshire		
Bethlehem	Colonial	August 2–4 changed from Sept. 9
Colebrook	Halcyon	August 11 changed from October 3
Groveton	Star	August 8 changed from September 30
Hampton Beach	Olympia	July 27 changed from July 3
Lisbon	Empress	August 9 changed from September 29
Littleton	Premier	August 5 changed from September 27
Newport	Coniston	July 20 changed from June 29
New Jersey		
Mays Landing	Victoria	September 16
Stone Harbor	Parkway	August 21–22
New York		
Farmingdale	Strand	July 15–16 changed from July 8–9
Mexico	Wilcox Memorial Hall	August 11–12
Tuckahoe	Lyric	August 21–22
North Carolina		
Aulander	Bertie	August 21–22
Chapel Hill	Pickwick	October 12
Waynesville	Capitol	October 21–27
Whiteville	Grand	October 17–18
Ohio		
Delphos	Capitol	September 13–14
Maumee	Strand	September 26–27
Monroeville	Opera House	July 31–August 1
Perrysburg	Palace	July 13–14
Rossford	Mecca	July 13–14
Shelby	Castamba	July 27–28
Sugar Creek	Community Hall	November 26
Zanesville	Grand	November 26–27
Oklahoma		
Healdton	Thompson	August 11–12
McLoud	Rex	December 12–13
Pennsylvania		
E. Greenville	Grand	August 3–4
Eagles Mere	Casino	August 5
Lancaster	Hamilton	August 15 (week)
Manheim	Auditorium	September 2–3
McAdoo	Palace	July 23
Vermont		
Bellows Falls	Star	July 13–14 changed from July 11–12
Barton	Gem	August 9
Franklin	Town Hall	July 14
Lyndonville	Community	August 8
Orleans	Opera House	August 10
St. Johnsbury	Gray's Star	August 31–September 1 changed from August 8–9
Virginia		
Clarksville	Crescent	September 14–15 changed from September 7–8
Colonial Beach	Mensh	August 23–25
Crewe	American	August 16–18
Oceanview	Ocean-View	July 7

Coast Guests Won't Forget This Trip

(*Continued from page* 698)

Hood River, 68 miles—The confluence of the Hood River with the Columbia. At the head of the Hood River Valley, which is famous the world over for its fruits, especially apples, strawberries, and small fruits, stands noble Mt. Hood, the most beautiful and accessible of the snow peaks of the Cascade Range.

Mt. Hood

Mt. Hood, the "Most Beautiful Mountain in America," is Oregon's premier mountain playground. It is reached on the north side over the famous Columbia River Highway. The majestic mountain is always in front of you, and thundering below is the Hood River. An occasional glimpse to the rear will show a splendid view of Mt. Adams, in Washington. In this district is raised some of the world's finest apples.

Portland Convention to have "Round Table"

The Program Committee of the International Association of Fire Engineers has set aside Wednesday evening, August 10, from 8:15 p. m. on for a "Round Table" discussion. This is going to prove one of the features of the Convention for it provides the opportunity for all members to present the problems that are troubling them for discussion by the convention.

Send in Questions for the "Round Table"

If you have any question you would like to have discussed at this session, send it at once to "Round Table," *The International Fire Chief*, 225 West 34th Street, New York. It will be printed in the next issue along with the questions already received (which are listed below) and will thus present the opportunity for your brother officers to prepare their discussions before leaving for the Convention.

And you are urged to come prepared to give your experience on any of the other questions asked.

Let's make this "Round Table" Discussion the high point of interest at the Portland meeting! Send in your questions, and be prepared to answer those asked by your brother chiefs.

Questions Received Up To Date For Discussion at the Round Table

1. A serious fire hazard has been created by the advent of "celluloid lacquers," such as Duco, etc., particularly in painting shops where such materials are widely used. What are the best methods of preventing and handling fires in shops where such materials are used?

2. Where industrial alcohol in large quantities is ablaze, none of the ordinary types of extinguishers seems to be effective in extinguishing the fire; even foam seems to dissolve instantly when thrown upon such a fire. How are such fires handled most effectively?

3. We have had more than our share of false alarms during the past six months. I would like to hear from other chiefs how they check the number of such alarms.

4. In our department we always lay a water line together with chemical line, where a fire is apparently small but where we do not know the extent of it. I understand many chiefs lay only a chemical line on going into such fires. I would like to have the opinions and experience of some of my brother chiefs on this subject.

5. What is your practice with regard to charging for runs made to towns of communities outside of your city limits?

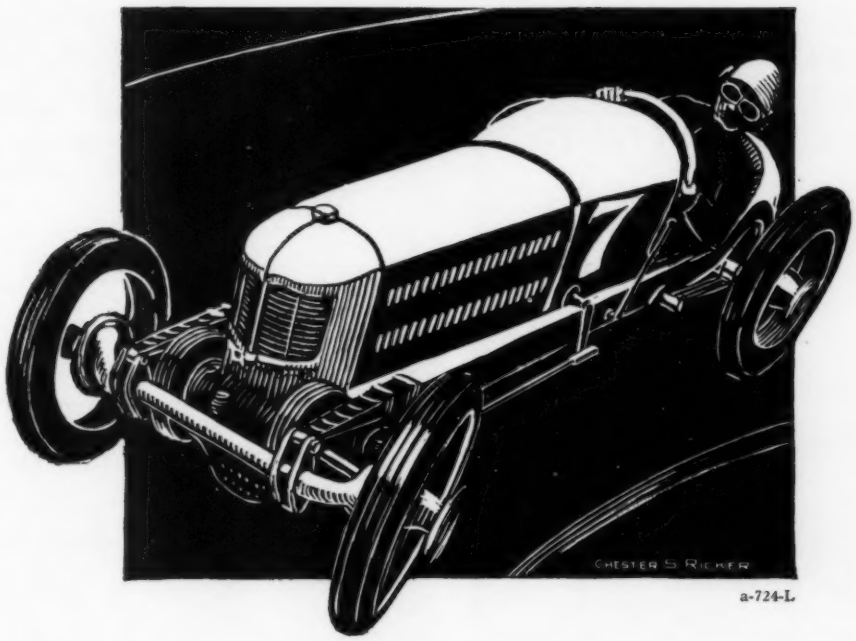
6. The following question is of interest chiefly to volunteer departments: There has developed in our section of the country some little opposition to the practice of our volunteer companies taking their apparatus out of town to attend tournaments. I would like to have an opinion on this practice, and would like to know if any of our members have heard of any instance where a large fire has resulted while apparatus was away.

Gerhard, Consulting Engineer, Dead

William Paul Gerhard, fire protection engineer, author of "Theatre Fires and Panics," and consultant in sanitary engineering, died suddenly in his home in Scarsdale, N. Y., as the result of heart disease at the age of seventy-two.

Mr. Gerhard was born in Hamburg, Germany, and graduated in 1875 from the Polytechnic School at Carlsruhe. He came to the United States in 1877 and settled in St. Louis where he was appointed assistant engineer in the Department of Public Works, Since 1883 he made his headquarters in New York City.

He was a member of a number of scientific societies. Mr. Gerhard is survived by two brothers, Norman C., who is a prominent water works engineer and Hans W. Services were held from his home in Scarsdale, N. Y.



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All Waukesha Engines are equipped with the well known "Ricardo" Head, a patented design owned by the Waukesha Motor Company. Our 100 horsepower six cylinder heavy duty type of engine is particularly suited to 750 Gallon Pumper Service. It is now used in every new piece of fire apparatus built by the City of Milwaukee. This choice merely confirms nearly two years past experience with them, also they have passed every Underwriter's Test with ease. If you do not know about them, you had better write for the Fire Engine Bulletin and for the complete reports of Underwriter's Tests that these Heavy Duty Six Cylinder Engines have passed.

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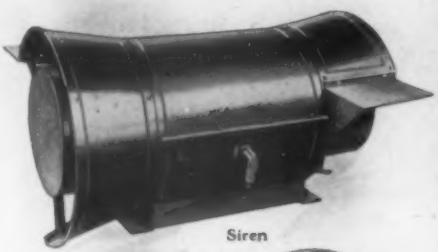

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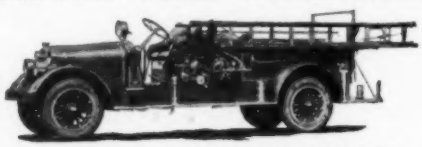

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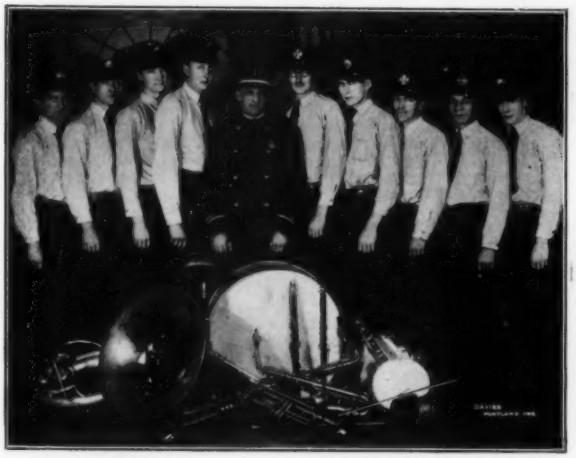
Portland F. D. Band Will Broadcast

The Portland Firefighters Orchestra, under the direction of Captain Alex Holden, which is the official Orchestra for the combined Fire Chiefs Conventions, to be held in Portland, the "Rose City," August 4th to 12th, inclusive, have made arrangements to play for one of the largest Radio Stations on the Pacific Coast, Radio Station KEX operating on 239.9 meters, 1250 kilocycles and 2500 watts.

The orchestra will participate in what will be known as the "Firefighters Hour," every Monday evening between 8 and 9 o'clock, which will open with the clang of gongs and the blowing of sirens, tapping out the regular program.

During this hour's entertainment at 8:30 each Monday evening, some member of the Fire Chiefs' Convention Committee will



Portland Fire Department Band: E. Kingsley; Hal Painter; Russell Devaney; Wm. Jacobson; Alex. Holden; Chas. Maw; Larry Rogers; Mark Ross; W. Knowlton and Leo Delaney. Byard Johnson, Entertainer, Absent.

speak for five minutes on the Conventions. The following is the list of speakers and their dates:

Monday, May 30.	Batt. Chief Fred. W. Roberts.
Monday, June 6.	Asst. Chief Edw. Grenfell.
Monday, June 13.	Batt. Chief Harry Johnson.
Monday, June 20.	Batt. Chief Wm. D. Heath.
Monday, June 27.	City Commissioner C. M. Bigelow.
Monday, July 4.	2nd Asst. Chief Jas. Dillane.
Monday, July 11.	Jay W. Stevens.
Monday, July 18.	Judge Jacob Kanzler.
Monday, July 28.	Mayor Geo. L. Baker.
Monday, Aug. 1.	Jay W. Stevens.

If you would write Radio Station KEX, Portland, Oregon, Terminal Sales Bldg., how you receive their programs, and make aany suggestions you may desire beneficial to these programs, we would certainly appreciate your co-operation.—L. G. HOLDEN, Chief, P. F. D.

Side Trip to Alaska

For those who can spare the time, following the International Association of Fire Chiefs' convention at Portland, a side trip has been arranged to Alaska, as announced in the April issue of this journal.

Word has just been received that reservations are going fast and delegates attending the convention who intend to take the Alaska trip are urged to get their reservations in at once. At the present time only 35 cabins remain available. The chiefs' party will go on the "Princess Alice" instead of the "Princess Charlotte," as first announced.

The itinerary of the trip is as follows:

Train leaves Portland at close of convention; going direct to Seattle.

At Seattle a Canadian Pacific Steamer. "Princess Alice," is boarded and it leaves at 12:05 a. m., arriving at Vancouver on Saturday, August 13, 8 a. m.

A sightseeing trip will be held around Vancouver in the afternoon, the boat sailing again at 6:30 Saturday.

Through the Gulf of Georgie and the Seymore Narrows, the boat sails toward Alaska. En route Indian villages, marked by groups of Totem poles, will be seen.

On Sunday, the first day abroad—early in the morning the party will arrive at Alert Bay, noted for its salmon cannery, which is open to visitors. Only a short stay will be made, and the boat then sails on through Queen Charlotte Sound.

On Monday the boat arrives at Prince Rupert, noted for its fur stores. After a short stay it leaves to go through the Fairyland of Alaska, passing many Indian villages. About three hours out the International Boundary Line is crossed and the boat enters Ketchikan, the most southern town in Alaska, noted for its curio stores. Also for the famous Totem pole. "Chief Johnson."

On Tuesday, the third day, a distinct change of scenery will be noted. The stretches of water become wide, and the mountains rise on either side with glaciers crowning their crests. At this time Wrangell, named after a Russian governor, is entered. Here will be seen some very old Totem poles near the wharf.

Two hours out from Wrangell the ship enters the Wrangell Narrows, which are twenty miles long. Then the glacier fields of Alaska are entered. At this point will be seen the world's famous Taku Glacier—a mile wide, 100 feet thick and over ninety miles long.

Three hours later the boat enters Juneau, the capital of Alaska, clinging to the base and side of Mount Juneau, 3,500 feet high.

The steamer arrives at Skagway, founded in 1896 during the gold rush, about 7 o'clock the next morning.

At this town the guests will leave the boat for a journey into the interior. Leaving Skagway at 8:30 a. m. and passing over part of the old trail used in the days of the gold rush—over the Sawtooth Mountains and along Lake Bennett the party reaches the starting points of many of the glaciers.

Returning, the boat arrives at Skagway at about 4:30 p. m. and the guests have until 7 p. m. to shop and go sightseeing. The boat leaves Skagway on August 17, 7 p. m. for a four days delightful sail back to Victoria and Seattle.

The rate for the Alaska Cruise from Seattle to Skagway and return to Seattle is $158.75 (minimum rate room).

For further details on the trip write the San Francisco Real Estate Board Alaska Cruise, Room 305, 156 Montgomery Street, San Francisco, Calif.

Progressive Lunch at the New England Chiefs' Convention

If nothing else, the chiefs always have a healthy appetite. Some of the chiefs are shown in front of two of the stations which formed part of the progressive buffet luncheon chain. Part of the course was served in each of the stations, and in this way the visitors had a chance to inspect some of the fire stations in Portland, Me. The central station is shown in the upper photograph.

Portsmouth, R. I., Has New Apparatus—Portsmouth, R. I., has received new fire apparatus.

CONVENTION DATES

July 12-14—MICHIGAN STATE FIREMEN'S ASSOCIATION. 53rd Annual Convention, Lansing, Mich. Secretary, H. L. Williams, Luddington, Mich.

July 13-14—INDIANA FIREMEN'S ASSOCIATION. 10th Annual Convention, Indianapolis, Ind. Secretary, Frank H. Miller, Fire Headquarters, Terre Haute, Ind.

July 19-23—SOMERSET COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual Convention, Rockwood, Pa. Secretary, J. R. Shanks, Rockwood, Pa.

July 21—NEW JERSEY STATE FIRE CHIEFS' ASSOCIATION. Quarterly Meeting, Borough Hall, Red Bank, N. J. Secretary, Fred. A. Trowbridge, 17 South Street, Morristown, N. J.

July 21-22—CENTRAL NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. 34th Annual Convention, Cortland, N. Y. Secretary, Thomas F. Murray, Cortland.

July 25-28—DOMINION ASSOCIATION OF FIRE CHIEFS. 19th Annual Convention, Hull, Quebec. Secretary, Chief James Armstrong, Kingston, Ont.

July 27-28—VERMONT STATE FIREMEN'S ASSOCIATION. 38th Annual Convention, St. Albans, Vt. Secretary, Edwin D. Moore, Bennington, Vt.

July 31-Aug. 1-2—IDAHO STATE FIREMEN'S ASSOCIATION. Annual Convention, Wallace, Idaho. Secretary, Willard Adams, Rigby, Idaho.

Aug. 1-2—WASHINGTON STATE FIREMEN'S ASSOCIATION. Annual Convention, Chehalis, Wash. Secretary, H. S. Jenkins, City Electrician, Fire Headquarters, Bellingham, Wash.

Aug. 4-6—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 34th Annual Convention, Portland, Ore. Secretary, State Fire Marshal Jay W. Stevens, 1014 Merchants' Exchange Bldg., San Francisco, Cal.

Aug. 6—CALIFORNIA STATE ASSOCIATION OF FIRE CHIEFS. Annual Convention, Portland, Ore. Secretary, Chief William Cooper, Richmond, Cal.

Aug. 7-8—OREGON STATE FIRE CHIEFS' ASSOCIATION. 8th Annual Convention, Portland, Ore. Secretary, Thomas Coates, Tillamook, Ore.

Aug. 8-9—UTAH STATE FIREMEN'S ASSOCIATION. 20th Annual Convention, Springville, Utah. Secretary, H. E. Anderson, Fire Headquarters, Salt Lake City.

Aug. 9—MASSACHUSETTS PERMANENT FIREMEN'S ASSOCIATION. Annual Convention, New Bedford, Mass.

Aug. 9-11—CUMBERLAND VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 26th Annual Convention, Western Port, Md. Secretary, C. L. Jacobs, Waynesboro, Pa.

Aug. 9-12—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 55th Annual Convention, Portland, Ore. Secretary Chief J. J. Mulcahey, Yonkers, N. Y.; Executive Secretary, State Fire Marshal Jay W. Stevens, Merchants' Exchange Bldg., San Francisco, Cal.; Chairman, Exhibit Committee, Chief Albert Herring, Murphysboro, Ill.

Aug. 14-16—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual Convention, Elmira, N. Y. Secretary-Treasurer, Frank A. Emden, 1200 Lenox Avenue, Utica, N. Y.

Aug. 16-19—FIREMEN'S ASSOCIATION, STATE OF NEW YORK, and WESTERN NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. Joint Convention of both associations, Niagara Falls, N. Y. Secretary, State Association, Fred A. Davis, Fort Edward, N. Y.; Secretary, Western N. Y. Association, Henry A. Clark, 21 Porter Avenue, Batavia, N. Y.

Aug. 19-20—CONNECTICUT STATE FIREMEN'S ASSOCIATION. 45th Annual Convention, West Haven, Conn. Secretary, D. W. Harford, South Norwalk, Conn.

Aug. 22 (week of)—NORTH CAROLINA STATE FIREMEN'S ASSOCIATION. Annual Convention, Greensboro, N. C. Secretary, John L. Miller, Concord, N. C.

Aug. 24-26—VIRGINIA STATE FIREMEN'S ASSOCIATION. 41st Annual Convention and Tournament, Alexandria, Va. Secretary, E. K. Landis, Pulaski, Va.

Aug. 24-27—CALIFORNIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Stockton, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth Street, San Diego, Cal.

Sept. 5-7—COLORADO STATE FIREMEN'S ASSOCIATION. 11th Annual Convention and Tournament, Longmont, Col. Secretary, Clinton Turnbull, 303 Jacobson Bldg., Denver, Col.

Sept. 7—DELAWARE STATE FIREMEN'S ASSOCIATION. 7th Annual Conference, Rehoboth Beach, Del. Secretary, Sam H. Carson, Dover, Del.

Sept. 7-8—MISSOURI STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Kirksville, Mo. Secretary, District Chief J. T. Lynch, Kansas City, Mo.

Sept. 7-8—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 2nd Annual Convention, Kirksville, Mo. Secretary M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

Sept. 12-14—ARKANSAS STATE FIREMEN'S ASSOCIATION. Annual Convention, Russellville, Ark. Secretary, H. D. Compton, Little Rock, Ark.

Sept. 13-15—ILLINOIS FIREMEN'S ASSOCIATION. 40th Annual Convention, Jacksonville, Ill. Secretary, Roy A. Alsip, Champaign, Ill.

Sept. 13-15—MASSACHUSETTS STATE FIREMEN'S ASSOCIATION. Annual Convention, Salem, Mass. Secretary, D. J. Looney, 1046 Old South Bldg., Boston, Mass.

Sept. 20-21—IOWA STATE FIREMEN'S ASSOCIATION. 50th Annual Convention and Anniversary, Emmetsburg, Ia. Secretary E. E. Parsons, Marion, Ia.

Sept. 22-24—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 50th Annual Convention and Anniversary, Atlantic City, N. J. Secretary, William Exall, Chamber of Commerce Bldg., Newark, N. J.

Sept. 23—NEW JERSEY STATE FIRE CHIEFS' ASSOCIATION. Annual Meeting, Atlantic City, N. J. Secretary, Fred A. Trowbridge, 17 South Street, Morristown, N. J.

Oct. 4-6—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Shamokin, Pa. Secretary, Charles F. Clark, 411 Bellevue Avenue, Wayne, Pa.

Oct. 17-19—KANSAS STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATIONS. 11th and 40th Annual Conventions, Kansas City, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Enlarge Salvage Work to Cut Losses

(*Continued from page* 688)

which has given the manufacturer considerable trouble in making a cover of this type is in connection with seams. These must be sewed and it has been almost impossible to make a seam which did not allow some water to come through when the covers were bagged and held several inches of water.

Work Done by Rockford, Ill.

It is well recognized that some definite means must be taken to reduce the enormous fire loss of American cities and towns. It has been estimated that 75 per cent of this loss is due to water damage and a large part of this can be eliminated through systematic and scientific salvage work. No city which has undertaken salvage work has ever discontinued it. That such work can and should be carried out is made clear in a statement by Thomas Blake, fire marshal and chief of the fire department of Rockford, Illinois, on May 27, 1927. He wrote:

"The following is a short history of the manner in which salvage work has become a part of the duties of the Rockford Fire Department.

"A few years ago it became a recognized fact that it was not only the duty of the fire department to extinguish fires, but also to protect property from damage by the water insofar as possible. Consequently the use of excess water in the extinguishment of fire was stopped, and the department purchased its first tarpaulins to more efficiently perform salvage operations.

"These tarpaulins were, and still are, carried by the hook and ladder companies, as up to the present time there are no companies performing salvage work exclusively. But it will only be a question of time until there is an organization of this character.

"The hook and ladder companies have five men to a shift and in addition to their duties as such companies, they are also charged with the salvage work. It is remarkable the results that are accomplished by these men in the protection of property from water damage. Especially so when it is taken into consideration the small number of men engaged in this work at the start of a fire; rarely more than two, and in the majority of cases only one, so their duties as truckmen are not neglected. As other men become available at fires they are detailed to help on salvage work.

"In case of a fire in the business district where questionable amount of water has to be used, an additional ladder company is called to cover up, while in the residential district the officer in command of the ladder company can, by carefully sizing up the fire upon his arrival on the fire ground, usually detail one and sometimes more men to start salvage work immediately. This system is working out quite satisfactorily.

"As the ladder companies became more proficient in salvage work it was not only necessary to add more tarpaulins, but brooms, shovels, squeegees, mops and augers were also needed to facilitate this work.

"At the present time the department has eighty-five tarpaulins, fifty-one of which are in service on three hook and ladder trucks, while the remainder are held in reserve. When it is remembered that up until a short time ago the department only boasted a dozen tarpaulins this increase in number not only speaks for itself, but also shows how salvage work has become an essential part of our duties. We are expecting a shipping of twenty new tarpaulins which should arrive within a week.

"The officers of the hook and ladder companies have just completed a week's course of instruction at the salvage school and maintained by the Fire Insurance Patrols of Chicago, of which Frank C. McAuliffe is Chief. It is without doubt the first and most efficient school of its kind in the world. Cities all over the United States are organizing salvage companies in conjunction with their fire departments and are sending men to this school for instruction.

"There is no question but that Rockford will benefit from the knowledge gained by its officers and firemen that attended this school, as we have adopted their method of salvage work as a standard throughout the department.

"I might also state that we are equipped with two drying racks upon which twenty-five tarpaulins can be hung at one time."

It is necessary, in justice, in telling of salvage work to pay tribute to Assistant Superintendent Albert Sidney Johnston better known as "Cap. Syd" of the New York Fire Patrol. He is the godfather of the Nyack fire patrol.

Lowville, N. Y., Receives Apparatus—Lowville, N. Y., has received its new fire apparatus from the Sanford company.

Lexington, Ky., Fire Apparatus Passes Tests—The new pumper delivered to Lexington, Ky., has successfully passed the required tests.

Dillsburg, Pa., Has New Apparatus.—The fire department at Dillsburg, Pa., has received a Reo Speed truck equipped with a sixty-gallon chemical tank, ladders, hose, chemical extinguishers and other appliances.

Turner Falls, Mass., Now Has New Apparatus—Turned Falls, Mass., has received its new fire apparatus which was on display at the convention of the New England Association of Fire Chiefs in Portland, Me.

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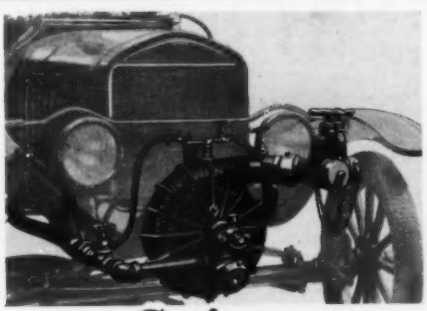

Safety
At Lowest Cost

"I am convinced that the Barton Pump cannot be beaten as fire fighting apparatus. With this pump through a one inch nozzle we throw a stream 75 feet high", writes M. J. Fitzmorris, fire chief of Memphis, Tenn.

"We paid for your pump more than three times over at its first fire", writes Vance F. Barker, fire chief of Vermontville, Mich.

Write for other interesting testimonials. The BARTON means safety at lowest cost—quickly installed on any car or truck—automatically primed. Send for Bulletin and low prices.

AMERICAN STEAM PUMP COMPANY
BATTLE CREEK, MICHIGAN

BARTON
PORTABLE PUMP

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Do they hear *You* Coming?

You can MAKE THEM HEAR you by using the same type of signal that is being used by the Locomotive. And why not? For 75 years the great American Railroads have been using WHISTLES to attract attention to an approaching train. If more effective warning signals existed, the railroads would be using them today—for they are spending millions annually to prevent the **DESTRUCTION of LIFE and PROPERTY.** Our Engineering Department has now made it possible for Fire Apparatus to also enjoy the protection of

BUCKEYE WHISTLES

A Warning Signal that Warns

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BADGES

have been the recognized standard for fire departments for almost 50 years. Used everywhere. More than 900 designs. Send for illustrated catalog and prices.

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242 W 55th St., N. Y. C.

MATHEWS

(Reg. U. S. Pat. Off.)

FIRE HYDRANTS

for

DOMESTIC

and

HIGH PRESSURE

Service

NOTE—

The positive waste valve.

All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

An easily installed
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readily adapts them to new grades.

VALVES and BOXES
CAST IRON PIPE
(Sand-Cast or "Sand-Spun")
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Motor Fire Apparatus

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

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Hamburg, Pa.

MAXIM FIRE APPARATUS

If your apparatus is Maxim-built it will prove dependable and reliable at all times.

Complete information upon request.

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6 Patented Features

ERICK SIREN

Thorough Weather Protection
Erick Sirens do not clog up. Snow and ice cannot enter and stop sounding rotor. Completely protected and sheltered from outside influences.

Features That Prove Supremacy

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Every telephone is a fire alarm station, permitting operator to sound alarm **instantly**, giving your fire department a chance to get the jump on the fire.

Universal Sound Projector
The Erick Sound Rotor and Deflector is built to instantly send a Fire Alarm.

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please write us and we shall be glad to have the right manufacturers provide you with complete specifications and prices for your consideration. This service won't cost a cent nor place you under any obligation whatever. We just want to cooperate both with you and with manufacturers in every possible way.

FIRE ENGINEERING
225 W. 34th St., N. Y. C.

PROPOSED IMPROVEMENTS

Little Rock, Pulaski Co., Ark.—Reports state City Council is planning the purchase of 2000 feet of new fire hose for the local department.

Burbank, Los Angeles Co., Calif.—International Motor Co., has contract for furnishing a 750 gal. pumper for the fire department.

West End, Albany Co., N. Y.—Reports state that plans are being made for the construction of a new fire station here.

Americus, Sumter Co., Ga.—City to sell bonds to the amount of $12,000 on July 8th. To be used for fire department equipment. A. D. Gatewood, Jr., City Clerk.

Homerville, Clinch Co., Ga.—According to reports a volunteer fire department was organized here with A. N. Carswell as chief. New apparatus is to be purchased.

Thurmont, Frederick Co., Md.—Reports state that Wm. J. Stoner, Mayor, requested Board of County Commissioners to purchase a new fire engine for the local department.

St. Paul, Ramsey Co., Minn.—A new police and fire headquarters will be erected here at cost of more than $500,000, according to reports.

Carthage, Jasper Co., Mo.—New fire apparatus and other equipment is to be purchased for the fire department here. S. S. Matthews, Chief of Fire Dept.

Hudson City, Hudson Co., N. J.—Plans for building a new fire house to accommodate another engine company are being made.

Paterson, Passaic Co., N. J.—Site being sought for erection of fire station in Peoples Park and purchase of two fire engines. Thomas L. Coyle, Chief of Fire Dept.

Ocean View, Cape May Co., N. J.—A volunteer fire department has been organized to be known as the Ocean View Volunteer Fire Co., Inc., with T. Canuso as chief.

Hoytville, Wood Co., Ohio—A volunteer fire department was recently organized here with Guy Smith as chief.

Ponca City, Kay Co., Okla.—Plans and specifications for the proposed fire station on the west side of the town have been completed. George Brown, Chief of Fire Dept.

Brackenridge, Allegheny Co., Pa.—A Seagrave 1,000 gal. pumper was recently purchased for the fire department.

Carbondale, Lackawanna Co., Pa.—Michael Carden, Chief of Fire Dept. urging the City Council that a new piece of apparatus be purchased for the Columbia Hose Co.

Hanford, Kings Co., Cal.—Board of Trustees endorsed the purchase of fire apparatus and fire extinguishers. Matter of purchase was put off until the next meeting.

Oxford, Talbot Co., Md.—Oxford Fire Co. is planning to reorganize the company.

Chicopee, Hampden Co., Mass.—A new fire station is to be erected in the Aldenville section on Grattan and Marcel Streets. John Pomphret, Chief.

Burlingame, San Mateo Co., Cal. City voted in favor of a $210,000 bond issue for the purchase of fire apparatus and the erection of a fire station. W. J. Dessin, Chief of Fire Dept.

Decoto, Alameda Co., Calif.—R. Bendel, Chief of Fire Commission stated that Commission is planning the installation of fire alarms here.

Marysville, Yuba Co., Calif.—City is considering the purchase of a new piece of apparatus for the fire department. A. P. Gross, Chief of Fire Dept.

Fairfield, Conn.—Plans being made for the purchase of equipment for the fire department here, according to reports.

Menlo, Guthrie Co., Iowa.—New fire company organized here with B. M. Graham as fire chief.

Newburyport, Essex Co., Mass.—Plans are being made for the installation of a new fire alarm system, according to reports. John C. Erickson, Chief of Fire Dept.

Chews Landing (P. O. Name Chews) Camden Co., N. J. William Ritter was re-elected chief of the fire department here.

Jersey City, Hudson Co., N. J.—Reports state City Commission is planning the erection of a new fire station here. Roger Boyle, Chief of Fire Dept.

Matawan, Monmouth Co., N. J.—Borough Council making plans for the purchase of a large amount of new equipment for the local fire department.

Yonkers, Westchester Co., N. Y.—City to standardize fire hose threads.

Dolgeville, Herkimer Co., N. Y.—A Foamite-Childs pumper was recently purchased to be placed on apparatus in service, for the fire department.

Upper Darby, Delaware Co., Penn.—Reports state plans are being made for the erection of a new fire house here.

Arlington, Snohomish Co., Wash.—City Council passed resolution of intention to purchase a pumper for the fire department here. Chas. J. Warren, Chief of Fire Dept.

Aberdeen, Grays Harbor Co., Wash.—City Council considering the purchase of a fire boat, also a pumper to replace the machine wrecked recently.

Culver City, Los Angeles Co., Calif.—Gamewell Co., Newton Upper Falls, Mass., has contract for revision and extension of fire alarm system at $24,100. F. B. Wilcox, Chief Fire Dept.

Glendale, Los Angeles Co., Calif.—A new fire station is to be erected soon to be known as Station No. 7.

Hilmar, Merced Co., Calif.—Board of Trustees of this city and Irwin appointed committee to look into the matter of purchase of new fire alarm.

Anaheim, Orange Co., Calif.—City Trustees authorized the purchase of a site for the erection of a new fire station.

When
In the Market

for equipment or supplies make your wants known through FIRE ENGINEERING. More bidders mean more competition and better satisfaction.

For Sale
Fire Apparatus

Triple combination Howe-Ford motor fire truck. First class condition. Apparatus run less than 1000 miles. Excellent for small town. Address: Geo. W. Frear, Clerk, West Haven, Conn. 6-15-29, 7-13

Highway Truck Used for Fire-Fighting

It is rather novel to learn of a truck used in highway work to be equipped with apparatus for extinguishing fires. The Fageol Highway Maintenance Truck operated by Kern County, Cal., has, in addition to the necessary tools used in the repair and maintenance of highways, equipment for extinguishing fires along the road. This is especially true of grain fires which burn down to the fences along the road.

There is a tank filled with chemicals and a high pressure tank using special nozzles. The speed of this unit in overgear makes it practical as an auxiliary fire-fighting apparatus.

The truck carries a water tank of 150 gallons capacity, and a

Highway Maintenance Truck Fitted for Fire-Fighting

centrifugal pump with self-priming device equipped with the necessary suction for filling the water tank from rivers or wells. The contents of the tank can be discharged either by gravity or by pressure. The truck has an air compressor with 6-inch by 6-inch twin cylinders operated by a belt from the forward drive shaft.

Kansas Associations Meet in October

Both the Kansas State Firemen's Association and the Kansas State Association of Fire Chiefs will meet in Kansas City, Kans., on October 17–19. This will be the fortieth annual meeting for the firemen and the eleventh annual meeting for the fire chiefs.

The memorial services will be held on Tuesday, October 18, and the banquet will be held in the evening of the same day. There will be dancing each evening of the convention, and a visit will be made to the packing plant.

Chief Orlander Lind of Kansas City is in charge of the arrangements, and all who plan to attend are urged to make reservations with him. The committee hopes 250 delegates will make the trip to Kansas City by train so that the visitors will be entitled to reduced railroad fare.

It is believed that on October 20, the organization meeting of the Missouri Valley section of the International Association of Fire Chiefs will be held, but the associations will notify their membership of this when final plans have been made.

A ladies auxiliary to the Kansas State Firemen's Association will be formed at this convention in accordance with the rule passed at a previous gathering.

Department and Other Reports Received

New Rochelle, N. Y.—Annual report of the fire department; eleven pages complete with many tables.

Asheville, N. C.—Annual report of the chief of fire department; fifteen pages with tables and cover.

Philadelphia Fire Insurance Patrol—Fifty-seventh annual report of the fire insurance patrol; fifty-nine pages and cover.

Brockton, Mass.—Annual reports of the chief of fire department and superintendent of fire alarm; seventy-seven pages and cover.

Board of Fire Commissioners, New South Wales—Seventeenth annual report of the Board of Fire Commissioners; twenty-eight pages.

FALSE ALARMS

SAFETY FIRST

Many of the churches in Europe have life size statuary work mounted in niches about the building.

An American who was touring the country—rather had made a tour of the beer gardens—was returning home to his hotel as steadily as possible when he observed the church not far from his hotel on fire.

He looked up and saw the statues of the saints with the calm expression on their faces that they had borne for many years. But the American became excited when he saw the flames.

He waved his hands excitedly and shouted, "Don't jump boys, the firemen will soon be here."

BELIEVE IT OR NOT

In a rural section, a fire had destroyed a part of the general store which was opened for business but a few months before. Naturally, the constable had a suspicion that the fire was of incendiary origin. He called around to make an investigation.

Looking around the damaged store he said to the owner, "who lights the electric lights here?"

"I do," and he started to explain to the constable the details about the wiring system.

The constable interrupted him somewhat excitedly, "Now look here, I want you to be careful because the answer to the next question may be used against you in court. I told you to be fair. The question is 'after you lit the lights the night of the fire, where did you throw the match?' "

FIRE PREVENTION.

It was a party of roaring youth or flaming something or whatever you choose to call it. It was one of those collections of "we moderns" who listen to what they should do and then do as they please.

The Adonis of the party was seated in a very luxurious chair surrounded by a bevy of attractive girls. One removed a package of cigarettes from her purse and offered it to those nearby, while another held a match for the smokers. When the man of the party was offered a light he refused.

"Superstitious aren't you?" she inquired. "Afraid to light three on a match?"

"Well, no not exactly superstitious, but I'm wearing a celluloid collar."

Bob Pemberthy is still suffering from exposure incidental to his experience at the fire which destroyed the Parisian Pants Pressing Parlors on Saturday afternoon. Bob was in a "while-you-wait" booth when the conflagration started.—*Life*.

INFLUENCED BY LINDBERGH

It is surprising how the habits of one is affected by the actions of another.

In an Ohio town, fire broke out in the top floor of a two-story building, and a call was sent in promptly for the fire department. A company responded.

The excited home-owner rushed to the captain and asked excitedly, "Is it a bad fire?"

"Naw," drawled the captain, "we ought to get it out in an hour."

"We? You and the fire department?"

"Fire department, hell," shouted the fire officer, "me and the pumper."

RECIPROCITY

A manufacturer of fire department supplies received the following letter from the chief of a volunteer fire department in a section where the residents evidently distrust one another:

"Please send me three 2½-gallon fire extinguishers. If they are good, I will mail you a check."

As modern business demands that all correspondence be answered with a certain degree of politeness, the sales manager of the firm wrote back to the chief a very brief reply:

"Send check. If good, will send the fire extinguishers."

A chimpanzee which is a pet of a Berlin, Germany, postman, amuses itself by turning in fire alarms and sitting by and watching the fire apparatus as they roll to the supposed fire.

NO INCENTIVE

"It makes me very nervous to see Gerry washing her gloves in gasoline—I'm afraid that she'll set the house afire."

"Don't let that worry you," her friend replied, "she won't start a fire here because there are no firemen around."

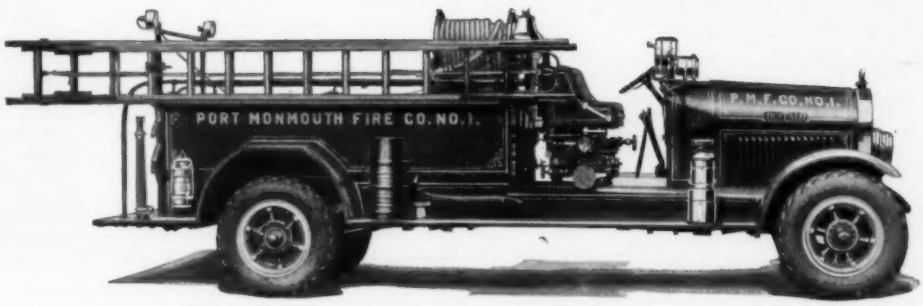
BLANK
Mine's all wrote, Chief!
ALL YOU SHAVE-TAILS PAY 'TENTION SOS YOU WONT PULL ANY BONERS ANSWERIN THESE HIGH-BROW STILL ALARMS! SEE!
Never use anything but small, pink, violet scented envelopes bearing the F.D. Seal, engraved!
FORM NO. 1. PROPER FIRE DEPT. ETIQUETTE
CORRECT REPLY TO A WRITTEN REQUEST FOR F.D. SERVICE
Dear Madam, In reply to your courteous invitation to extinguish an incipient conflagration in your home, please note that we accept with much pleasure and will respond immediately
Hey! George! Do you spell courtesy with a "k" or a "g"?
MASCOT

Drawing by "Art" Espey

Firemen Are Now Required to Know the Science of Letter Writing

Firemen of the future, knowing nothing but such elementary subjects as hydraulics, fire department administration, and local fire ordinances, will find that they will be working under a great handicap unless they are properly trained in the etiquette of letter writing. Nothing could be more plebian than for a fireman receiving a note on sweet scented violet stationery to shout to the messenger, "You'se tell the lady we's coming." The lady might even be offended. A very polite madam in Somerville, Mass., whose ancestors may have come over on the Mayflower, had a fire recently. She had a phone at her writing desk, but she was trained in the fine etiquette of extending invitations, and so she sent a very polite note by messenger to the fire department asking them to call. It is probable that other women, reading of this, will adopt the practice of inviting firemen by properly worded notes instead of by such a common method as the telephone. When a fire department officer receives such a note, it is necessary for him to have the proper training to write a suitable reply.

Buffalo Type 50



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Construction — Service — Power

Write for Detailed Specifications

BUFFALO FIRE APPLIANCE CORP.

44 Central Ave., Buffalo, N. Y.

YOUR LUNGS
are important to you.

You cannot burn or irritate them by smoke, gas or flame if you wear a

DONTFEAR

Smoke and Fume Respirator

Price $5. With airtight goggles and 5 extra canisters $7.50.
Send for descriptive catalogue.

Gibbs-Wahlert Mask Co.

Factory: 386 Jay St., Brooklyn, N. Y.
Address communications to Station G, Box 168, New York City

S & M SPECIAL LITE-ING
EQUIPMENT FOR FIRE APPARATUS

Nos. 90, 80, 70
S & M Spot-Lites

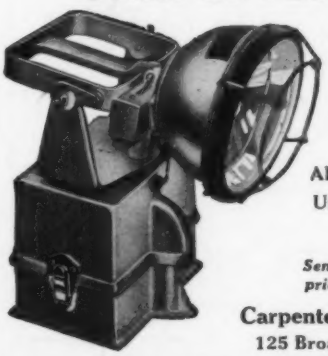
S & M Oval-Lite
"Lights around the Curve Before you Turn."

There are S & M Lamps for every fire department purpose, and each lamp is the leader in its field—Spot-Lites, Red Safety Lites and Safety Side-Lites, Head-Lites, Search-Lites, Tail-Lites and Oval-Lites.

Write for Catalog.

S & M LAMP CO.
118 W. 36th St., Los Angeles, Cal.

CARPENTERLITES



Portable Electric Searchlights for Fire Departments

Two Switches

Two Filament Bulbs

Powerful

Aluminum Construction

Universal Joint Motion

Dependable

Send for catalog and prices of full line

Carpenter Mfg. Company
125 Broadway, Boston, Mass.

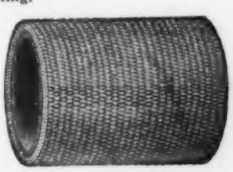
Multiple Jacket Fire Hose with Solid Woven Cover

Quaker Fire Hose is made with a tough elastic tube of a special rubber compound, covered with a circular-woven tight, cotton jacket, strongly built to stand the highest pressures.

Quaker Hose gives the most satisfactory service under the severe conditions encountered in fire fighting.

QUAKER CITY RUBBER CO.

Manufacturers of Daniel's P. P. P. Rod Packing



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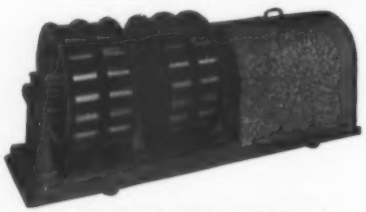
Branches: New York, Chicago, Pittsburgh, San Francisco.



THE DENVER SIREN

Now used in 43 of the United States, Canada and abroad.
Motor driven on any electric circuit.

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Hendrie & Bolthoff Mfg. and Supply Co.
Denver — Colorado

New Victor Gas and Fume Mask

Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

Over 5,000 Victor Gas Masks in Service

Full Line Fire Dept. Supplies and Equipment.

New 43 Edition Catalog on Request

The Woodhouse Mfg. Co., Inc
156 Chambers St., New York

D. A. Woodhouse, Pres. and Gen. Mgr. George J. Kunz, Vice-Pres. and Treas.

SOUTHWORTH

Quality Fire Apparatus

300 to 1000 Gallon Triple Combination Pumpers, City Service Trucks, Combinations and Chemical Cars.

Connections solicited throughout the East

Southworth Machine Company
Fire Apparatus Division

Address all correspondence to the Chelsea Office.

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BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.
230 West Randolph St., Chicago, Ill.

If a hose salesman can convince you by any argument that his three-year guarantee will result in just as good an adjustment, should one be necessary, as a guarantee for six years, from a reliable company, certainly if you have a goat, he's got it.

BI-LATERAL FIRE HOSE is guaranteed six (6) years.

"Pirsch" Builds Complete Line of Motor Apparatus
Let Us Submit Bids on Your New Apparatus
Catalogue No. 16 Now Ready! Send for it.

PETER PIRSCH & SONS CO.

Since 1857
Kenosha, Wisc.

BADGES

of Every Description

QUALITY GUARANTEED
Right Prices
Prompt Delivery

Write for latest catalogue and price list

EVERSON-ROSS CO.
88 Chambers St., New York
Also makers of the ROSS Helmet

A Word to Our Readers:

DO you ever stop to think that every advertiser in these pages offers either a product or a service that has certain unique advantages which he believes will interest and be of value to you? Otherwise it wouldn't be worth his while to advertise.

Almost every page contains the offer of some product or service that you would find of value in your department. It will pay you to read the advertising pages as carefully as you do the editorial.

"The wise man is he who is always willing to learn." It will pay you to read the advertising pages carefully.

THE PUBLISHERS.

HALE PUMPS

LONGER effective life, higher efficiency and greater freedom from trouble may be had by using Hale Dreadnaught Fire Pumps.

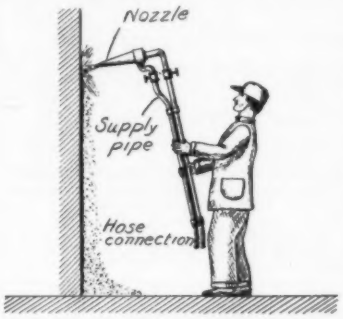
HALE FIRE PUMP CO.
Conshohocken, Pa.

Recent Patents

Descriptions of Patents Recently Issued of Interest to Fire Departments—Fire Apparatus and Extinguisher—Dust Explosions

Preventing Dust Explosions

A method of preventing dust explosions has been patented (No. 1,612,072) by Lewis Andrew Stinson of Oak Park, Ill., and is applicable especially in flour mills and elevators or where large quantities of explosive dusts accumulate.



The invention uses a spray arranged to use a liquid, and as occasion requires, a blast of air along with it. The liquid is composed of a solution that renders the dust substantially fire proof and non combustible. The illustration shows the device in use.

The nozzle is connected to the source of supply to receive compressed air through a hose connection. The hose is also connected to a supply of the fire proofing liquid.

In sections where the dust accumulates rapidly and particularly in such places as around drying machines or in heads, boots or spouts, and places that are not very accessible, fixed piping and fixed spray nozzles are provided. A relatively small amount of the fire proofing liquid is necessary to render the dust non-explosive.

The solution consists of sulphuric acid, and bicarbonate of soda mixed in water.

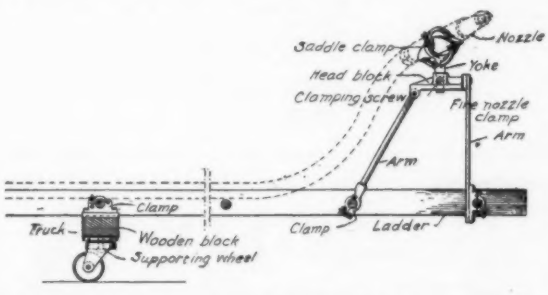
The force of the spray and the compressed air is sufficient to blow the dust away from the crevices where it generally lodges.

The inventor claims that more dust explosions are caused by blowing down the dust than by other means, and the spray that is used renders the process safe.

Fire Apparatus

A patent (No. 1,589,351) was granted to the late Jacob B. Blaw of Atlantic City, N. J., for a fire apparatus that has reference to directing a stream from a ladder.

The illustrations shows a vertical section of the ladder with the device attached. A ladder which may be part of the fire department equipment is arranged to have the improvements



attached thereto. A truck of the general character and which is detachable is clamped to one of the rungs of the ladder at such position along its length as found convenient and upon which the ladder may be supported while being moved longitudinally or swung around in various positions.

The truck consists of a wooden block provided with widely spaced supporting wheels which may be of any of the usual types such as is employed under warehouse trucks. The wheels are universally jointed so that they may swing about a vertical axis for easy adjustment of the supporting load. The block is provided with a pair of clamps having adjustable hinged clamping parts and locking screws whereby the block may be attached to a rung of the ladder while the ladder may rest upon the block to support the main weight of the equipment. In this manner, the ladder and the truck move as a unit and permit the ladder to be balanced upon the truck and easily shifted to whatever position may be desired.

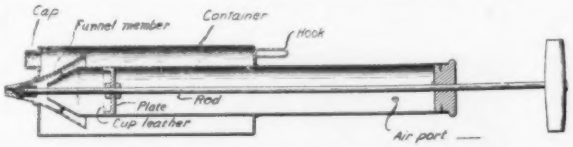
At the extreme end of the ladder is arranged a fire nozzle clamp which is also detachably clamped to the rungs of the ladder and adapted to support the fire nozzle at any angle desired. The nozzle is directed transversely of the ladder so that the stream may be thrown laterally upon the fire. The clamp is detachably clamped to the rungs of the ladder and consists of a head block with arms having their lower parts as clamps for the detachable connection with the rungs of the ladder. Hinged to head block is a rearwardly extending arm having at its lower end a clamp for attachment to another of the rungs of the ladder. Pivoted upon the head block is a yoke adjustable at a vertical axis and upon which is pivoted a saddle clamp for receiving and clamping the fire nozzle. The yoke may be clamped in adjustable position by a clamping screw. In this manner the fire nozzle may be set at any horizontal and vertical adjustment which may be necessary to insure the stream being thrown in the direction desired.

In using this apparatus, the nozzle is clamped in the desired position required to project the water stream where needed and with the valve closed, the ladder with its equipment is pushed through the passage and adjusted to any particular horizontal angle that may be desired. The water may then be turned on by a valve and the stream directed upon the fire.

Fire Extinguisher

A design of a spray powder hand fire extinguisher has been patented (No. 1,606,066) by Walter E. Everitt of Seattle, Wash. The drawing shows a cross section of the device.

There is a container adapted to hold powder to be sprayed and a cap on the bottom of the container closing the opening through which the powder is inserted into the container. A cylinder extends into the container, preferably in the form of a cup leather and suitably secured to an operating rod by means



of nuts threaded to receive the rod. The cup leather is backed by a circular plate. The outer end of the cylinder is provided with a suitable closure through which the operating rod passes—the rod is provided with a suitable handle.

The inner end of the cylinder has an open cone-shaped end and surrounding the end is a funnel-like member which extends through the adjacent end of the container. The funnel member is provided with a tapered seat adapted to form a seat for a closure member attached to the end of the operating rod. It extends beyond the piston and through the cone-shaped end of the cylinder. The closure member is preferably made of rubber.

The opening in the cap through which the operating rod passes is of the keyhole type to provide a slot to permit a radial pin on the rod to pass through the cap. This is to enable the plug of the valve to be held firmly to its seat in the funnel when the device is not in use.

When it is desired to operate the device, the rod is turned sufficiently to allow the pin to register with the slot in the cap, after which the rod may be freely reciprocated.

A port near the top of the cylinder permits free passage of the air as the piston is reciprocated.

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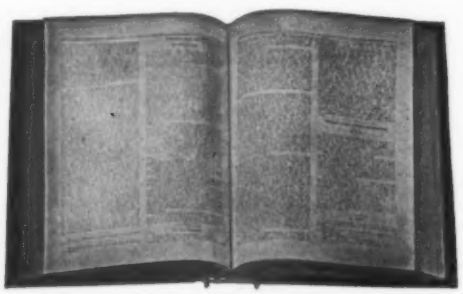

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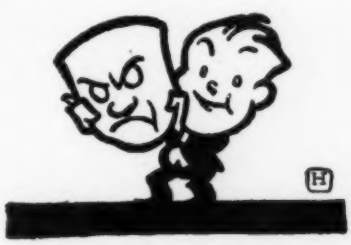

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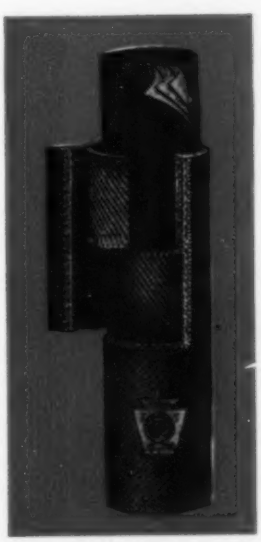

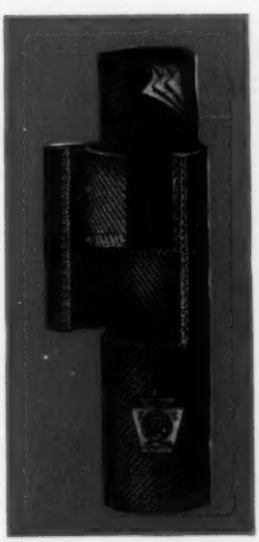

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